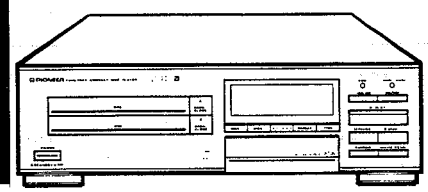
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
ARP2131

TWIN–TRAY COMPACT DISC PLAYER

PD-Z74T
PD-Z570T

MODEL PD–Z74T AND PD–Z570T HAVE FOLLOWING VERSIONS:

Type	Applicable model		Power requirement	Export destination
	PD–Z74T	PD–Z570T		
HEM	○	○	AC220V, 240V (switchable)*	European continent
HEMXJ	○	–	AC220V, 240V (switchable)*	European continent
HB	○	–	AC220V, 240V (switchable)*	United kingdom
HBXJ	○	–	AC220V, 240V (switchable)*	United kingdom
SD	○	○	AC110V, 120V–127V, 220V, 240V (switchable)	Kingdom of Saudi Arabia and general market
HPW	○	–	AC220V, 240V (switchable)*	Australia

* Change the position of the jumper of the mother board assembly.

- **This manual is applicable to the PD–Z74T/HEM, HEMXJ, HB, HBXJ, SD, HPW, PD–Z570T/HEM and SD types.**
- **As to the PD–Z74T/HEMXJ, HB, HBXJ, SD, HPW and PD–Z570T/SD types, refer to pages 73–79.**
- **PD–Z74T/HEMXJ and HBXJ types, manufactured in singapore, are identical with PD–Z74T/HEM and HB types respectively.**
  For identification, "MADE IN SINGAPORE" is shown on the rear panel of the product.
- **As to the mechanism description, refer to PD–Z74T SERVICE GUIDE ARP2144.**
- **Ce manuel pour le service comprend les explications de réglage en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

SO JAN. 1991 Printed in Japan

CONTENTS

1. SAFETY INFORMATION

(FOR EUROPEAN MODEL ONLY)

VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING!
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

LASER
Kuva 1
Lasersateilyn varoitusmerkki

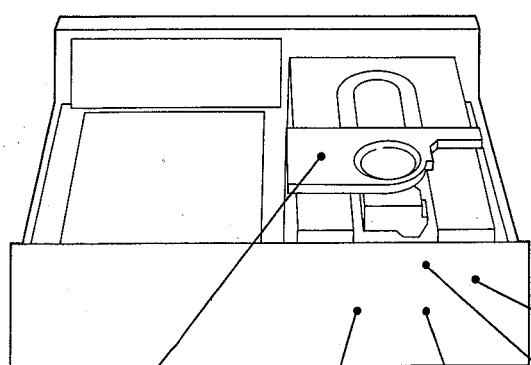
WARNING!
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF HIGHER CLASS THAN 1. SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LASER
Picture 1
Warning sign for laser radiation

LABEL CHECK (TWIN type)

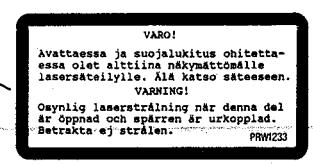


Additional Laser Caution

1. Laser Interlock Mechanism
The ON/OFF (ON : low level/OFF : high level) status of the U (S601) and L (S603) switches for detecting the disc clamp state is detected by the system microprocessor, and the design prevents laser diode oscillation when both switches U and L are OFF (high level).
Thus, the interlock will no longer function if switches U (S601) and L (S603) are deliberately shorted.
Laser diode oscillation will continue if pins 2 and 3 of CXA1471S (IC101) are connected to ground or pin 20 is connected to high level (ON) or the terminals of Q101 are shorted to each other (fault condition).

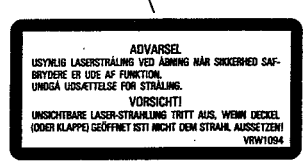
2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 or higher laser beam.

HEM, HEMXJ, HB and HBXJ types



HEM and HEMXJ types

HEM, HEMXJ, HB and HBXJ types



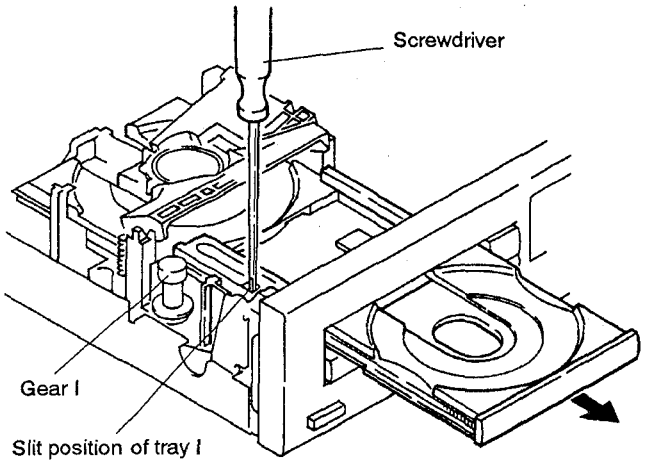
HEM and HEMXJ types

HB and HBXJ types

2. REMOVING AND MOUNTING OF EACH BLOCK

● REMOVAL OF TRAY I AND TRAY II

1. Open the tray I.
2. Insert the flat blade screwdriver into the slit in the left of tray I. Pull out the tray I by pushing the screwdriver.



* When remove the tray II, open it first, insert the flat blade screwdriver into the slit in the right of tray II, and pull out the tray by pushing the screwdriver.

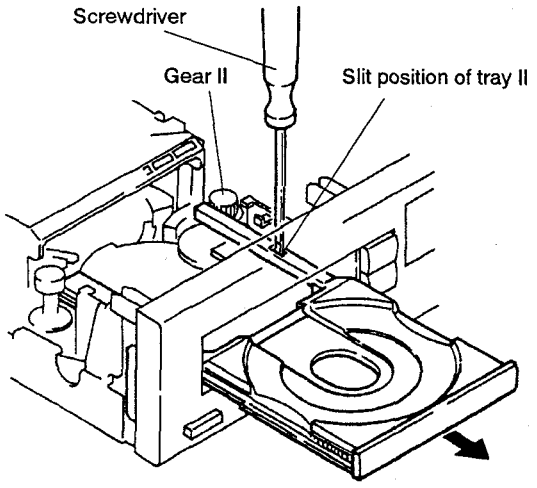


Fig. 1

● MOUNTING OF TRAY I

1. Set the disc II to the clamp position and open the tray I.
2. Align the 1st tooth of tray I to ungrooved portion of gear I, and insert the tray I.

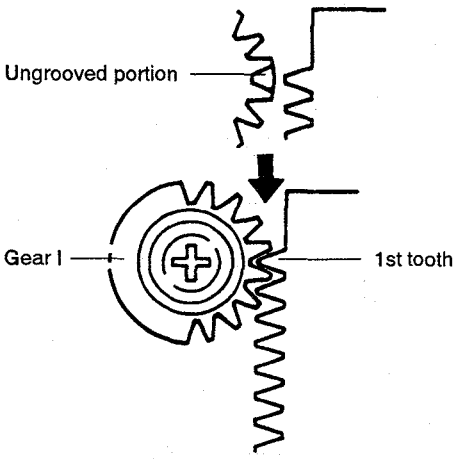


Fig. 2

● MOUNTING OF TRAY II

1. Set the disc I to the clamp position and open the tray II.
2. Align the 1st tooth of tray II to □ marked position of gear II, and insert the tray II.

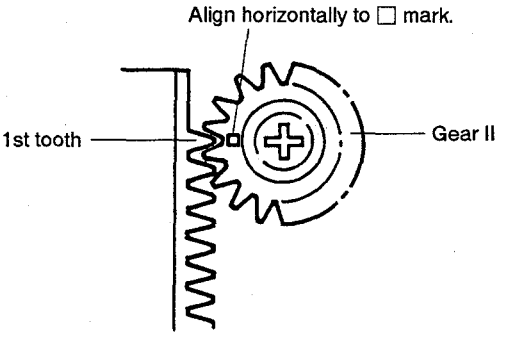


Fig. 3

● MOUNTING AND POSITIONING OF MAIN CAM, FOLLOW GEAR, GEAR I AND GEAR II

Set the following gears to the position as shown by arrows.

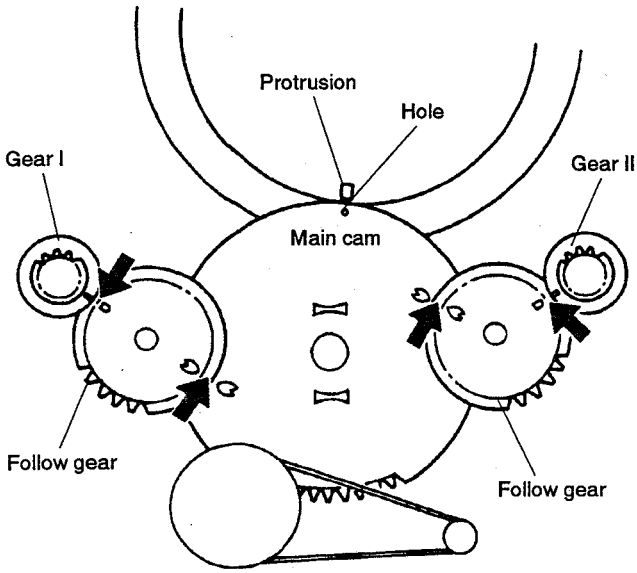


Fig. 4

● MOUNTING OF CLAMPER ASSEMBLY

Mount the clamper assembly by aligning the protrusion portion as shown in the figure.

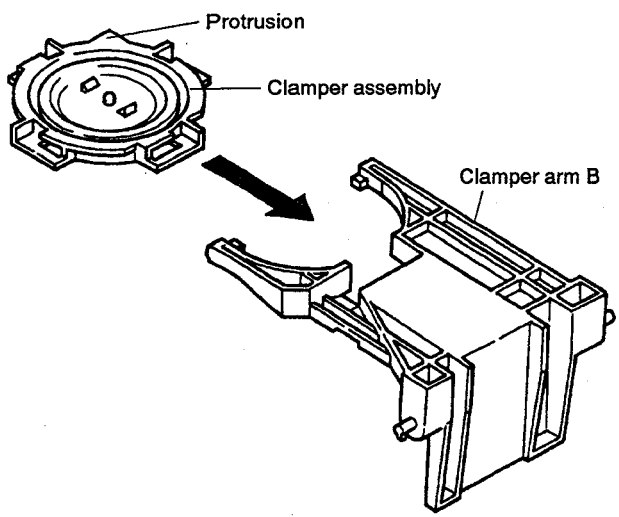
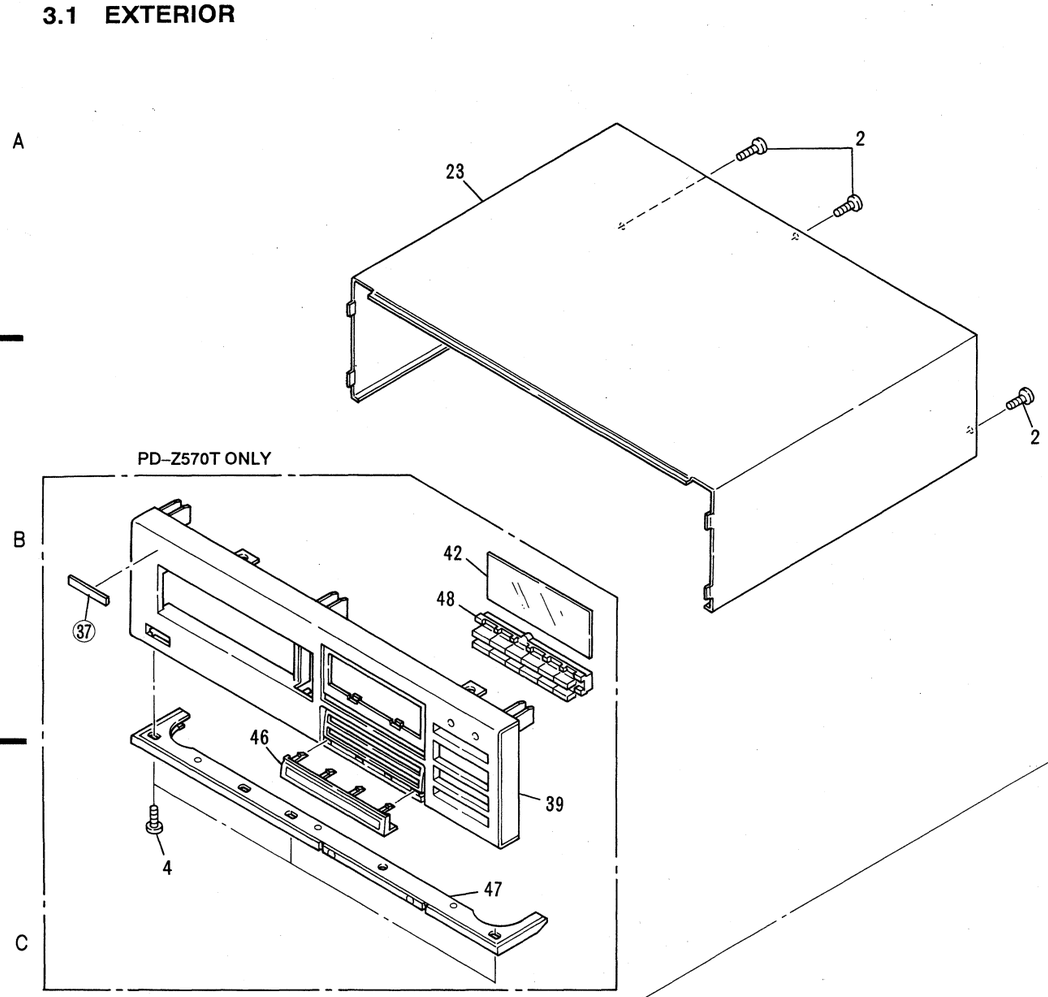
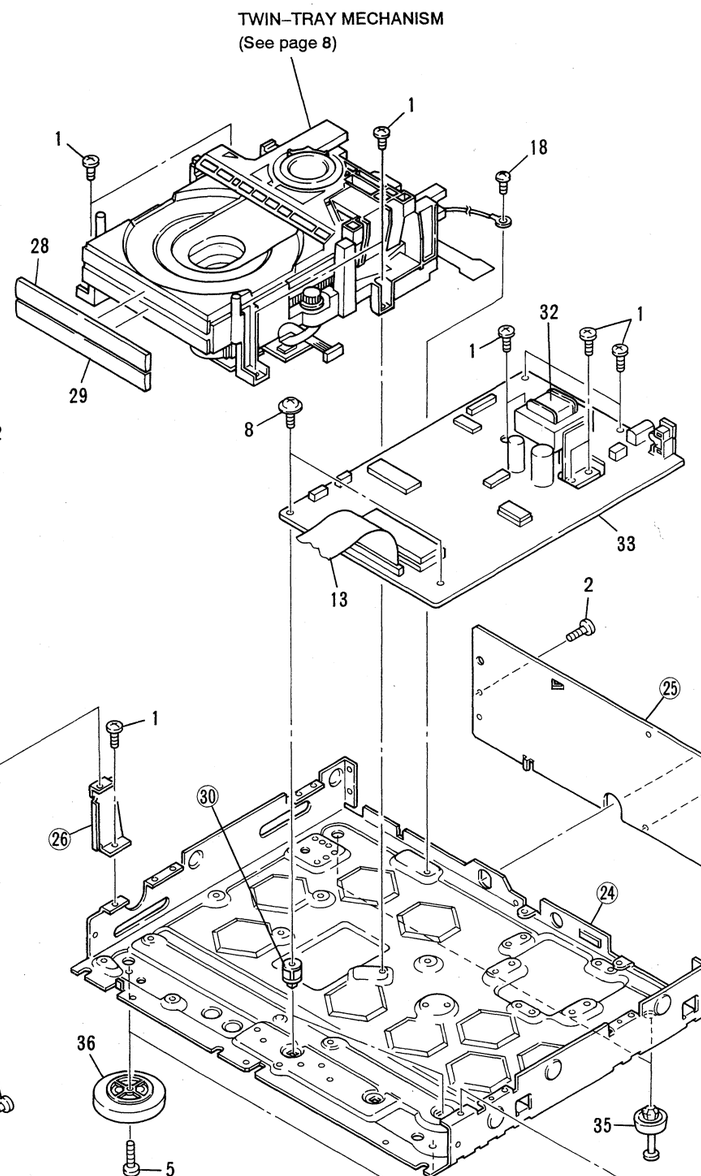


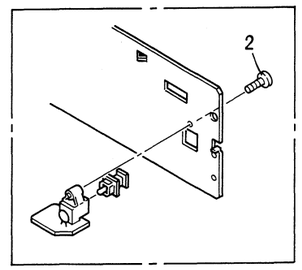
Fig. 5

3. EXPLODED VIEWS, PACKING AND PARTS LIST

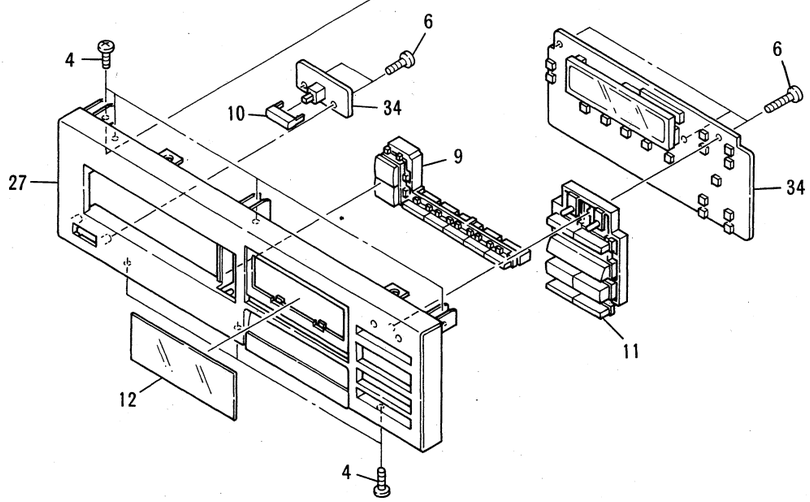
3.1 EXTERIOR



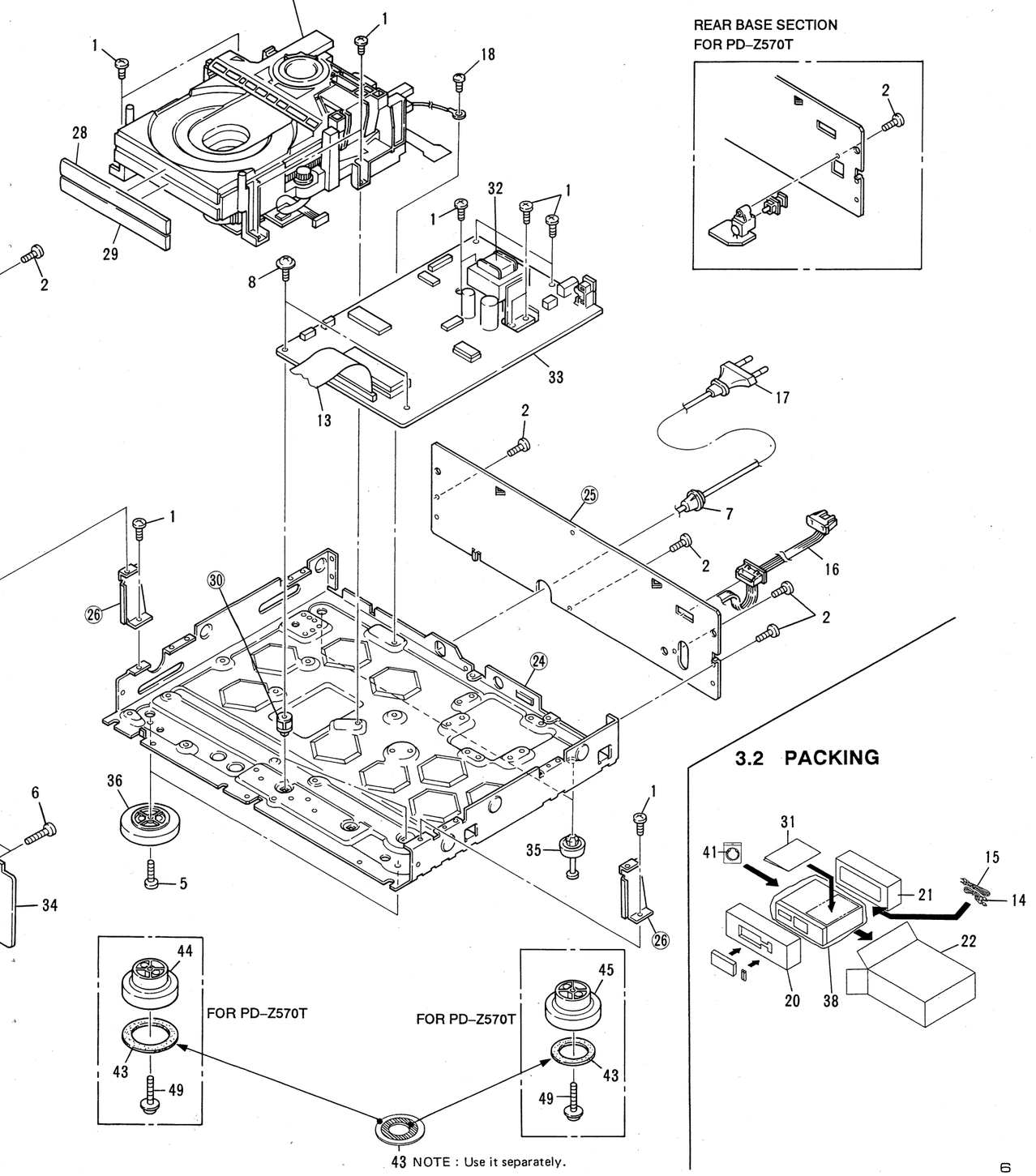




3.2 PACKING



TWIN–TRAY MECHANISM
(See page 8)



REAR BASE SECTION
FOR PD–Z570T

3.2 PACKING

NOTES:

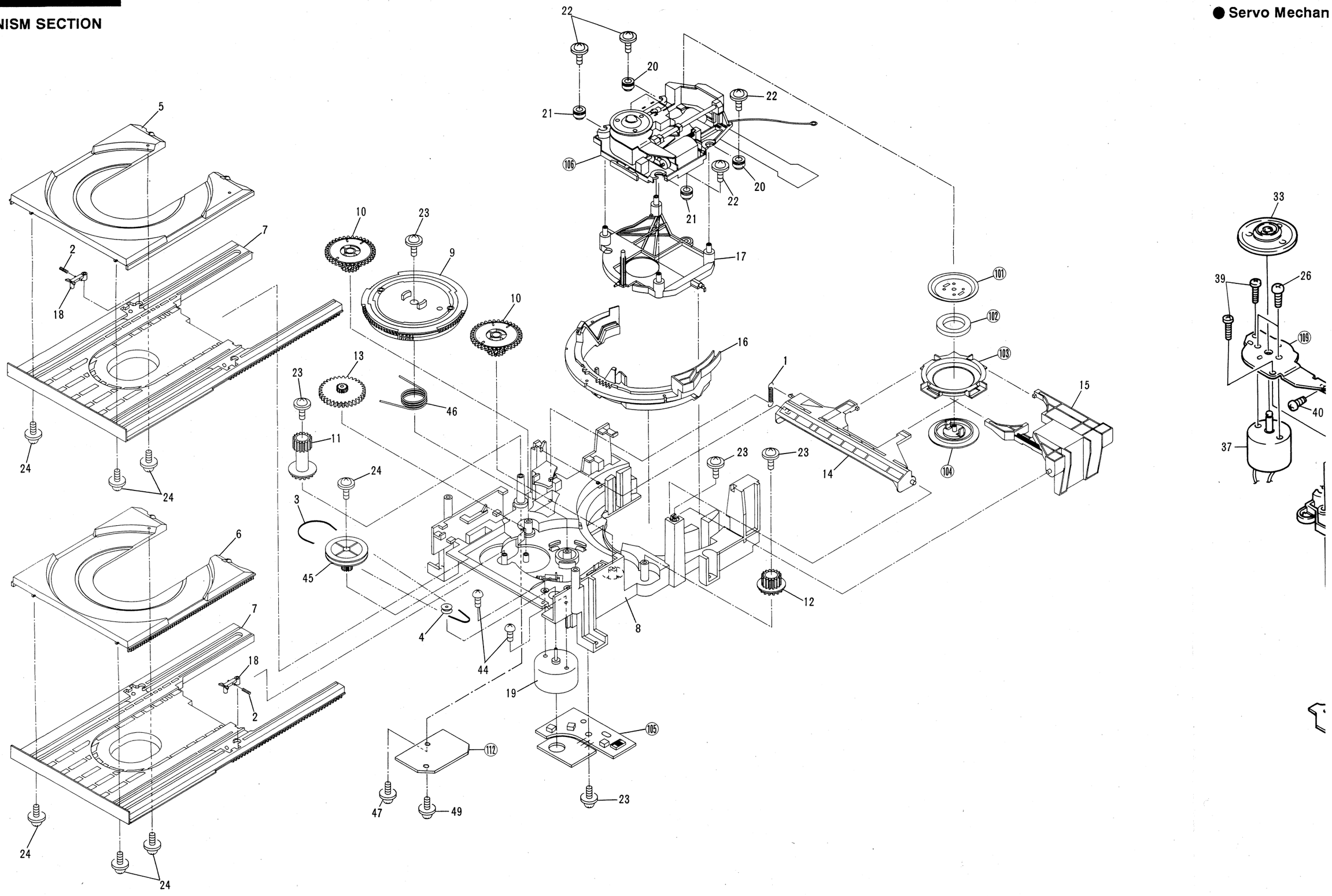
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Parts List

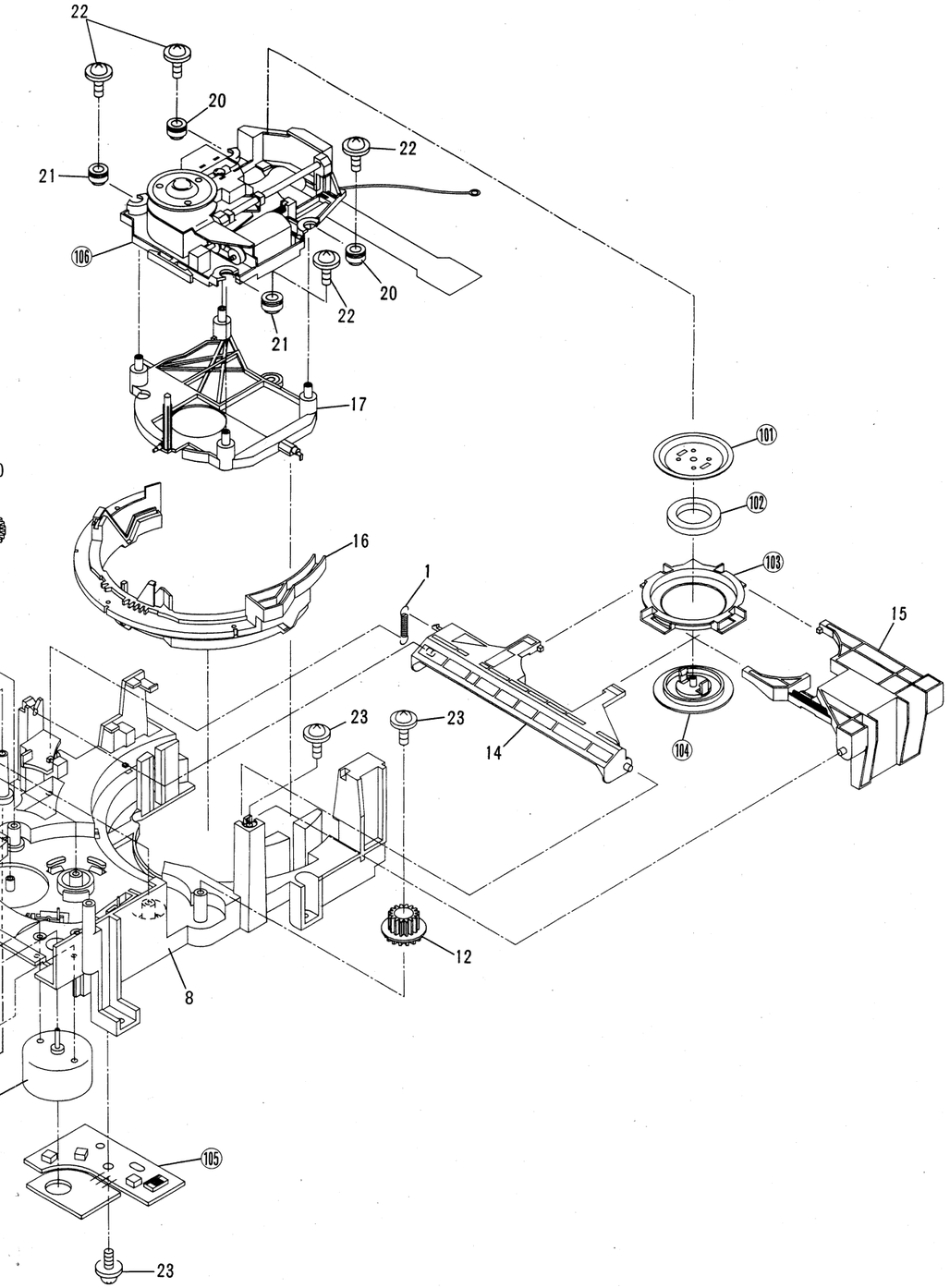
Mark	No.	Symbol & Description	Part No.
	1	SCREW	BBZ30P060FMC
	2	SCREW	BBZ30P080FCC
	3	·····	
	4	SCREW	BBZ30P080FZK
	5	SCREW	BBZ30P100FMC
	6	SCREW	BBZ30P120FMC
⚠	7	STRAIN RELIEF	CM – 22B
	8	SCREW	IBZ30P150FMC
	9	DISC BUTTON (For PD – Z74T)	PAC1522
		DISC BUTTON (For PD – Z570T)	PAC1525
	10	POWER BUTTON (For PD – Z74T)	PAC1523
		POWER BUTTON (For PD – Z570T)	PAC1526
	11	PLAY BUTTON (For PD – Z74T)	PAC1524
		PLAY BUTTON (For PD – Z570T)	PAC1528
	12	WINDOW (For PD – Z74T)	PAM1450
		WINDOW (For PD – Z570T)	PAM1451
	13	30P F • F • C/30V	PDD1049
	14	CORD WITH MINI PLUG (For PD – Z74T)	PDE – 319
	15	CORD WITH PIN PLUG (For PD – Z74T)	PDE1065
	16	CORD WITH CONNECTOR (For PD – Z74T)	PDE1067
		CORD WITH CONNECTOR (For PD – Z570T)	PDE1114
	17	AC POWER CORD	PDG1008
	18	SCREW	PDZ30P050FMC
	19	·····	
	20	PROTECTOR F (For PD – Z74T)	PHA1141
		PROTECTOR F (For PD – Z570T)	PHA1143
	21	PROTECTOR R (For PD – Z74T)	PHA1142
		PROTECTOR R (For PD – Z570T)	PHA1144
	22	PACKING CASE (For PD – Z74T)	PHG1578
		PACKING CASE (For PD – Z570T)	PHG1579
	23	BONNET CASE	PYY1146
	24	UNDER BASE	
	25	REAR BASE	
	26	ANGLE	
	27	FUNCTION PANEL	PNW1865
	28	TRAY NAME PLATE 1 (For PD – Z74T)	PNW1866
		TRAY NAME PLATE 1 (For PD – Z570T)	PNW1874
	29	TRAY NAME PLATE 2 (For PD – Z570T)	PNW1867
		TRAY NAME PLATE 2	PNW1875
	30	PCB SPACER	
	31	INSTRUCTION MANUAL (For PD – Z74T)	PRE1136
		INSTRUCTION MANUAL (For PD – Z570T)	PRE1139
⚠	32	POWER TRANSFOMER	PTT1125
⊙	33	MOTHER BOARD ASS'Y (For PD – Z74T)	PWM1350
⊙		MOTHER BOARD ASS'Y (For PD – Z570T)	PWM1345
⊙	34	SUB BOARD ASS'Y (For PD – Z74T)	PWX1142
⊙		SUB BOARD ASS'Y (For PD – Z570T)	PWX1141
	35	FOOT ASS'Y (For PD – Z74T)	PXA1201
	36	INSULATOR ASS'Y (For PD – Z74T)	PXA1343
	37	PIONEER BADGE	
	38	SHEET	Z23 – 022
	39	FUNCTION PANEL ASS'Y (For PD – Z570T)	PEA1129
	40	·····	
	41	OPTICAL FIBER CABLE (For PD – Z570T)	AKX1031
	42	FL PLATE (For PD – Z570T)	PAM1452
	43	STOPPER (For PD – Z570T)	PNM1070
	44	INSULATOR (For PD – Z570T)	PNW1573
	45	INSULATOR (For PD – Z570T)	PNW1574
	46	PANEL NAME PLATE (For PD – Z570T)	PNW1876
	47	SUB PANEL (For PD – Z570T)	PNW1877
	48	TRACK BUTTON (For PD – Z570T)	PAC1527
	49	SCREW	IBZ30P200FMC

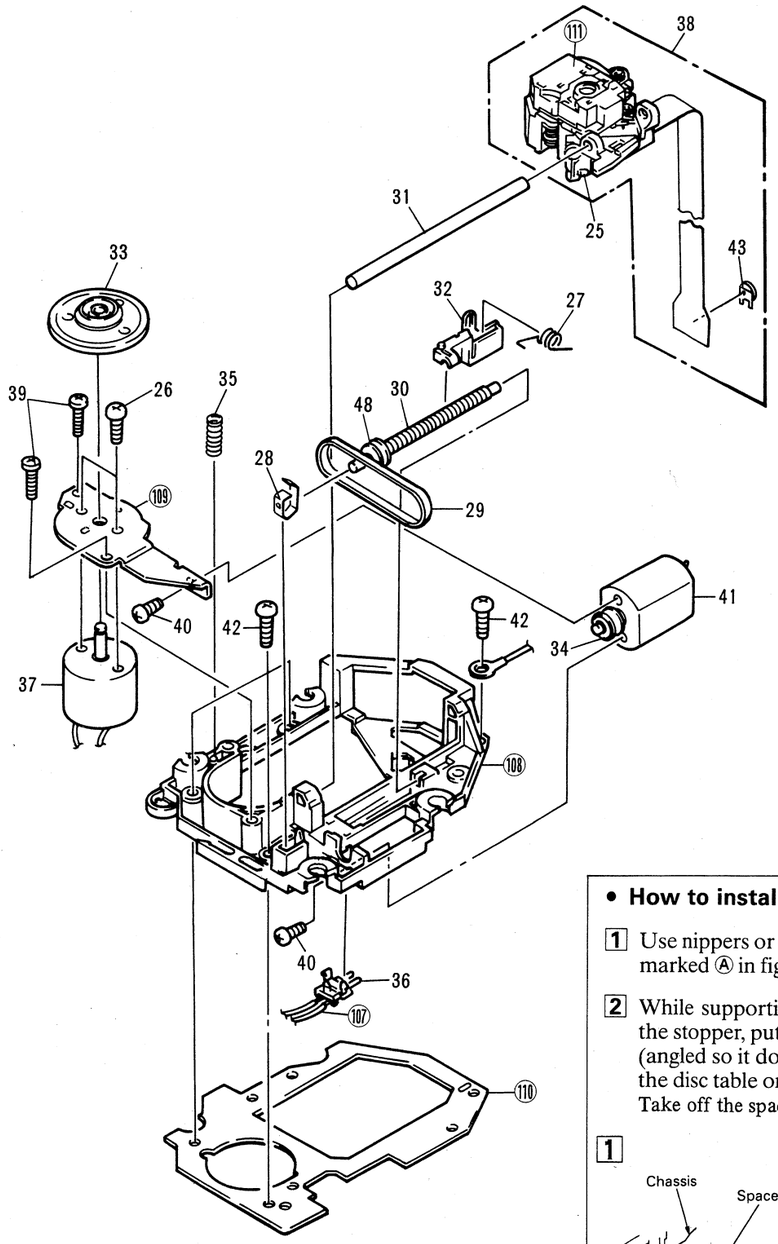
3.3 MECHANISM SECTION

● Servo Mechan



● Servo Mechanism Assembly Section

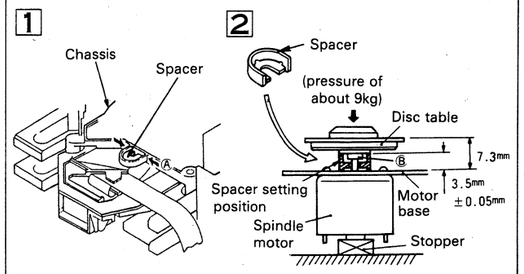




• How to install the disc table

1 Use nippers or other tool to cut the two sections marked Ⓐ in figure 1. Then remove the spacer.

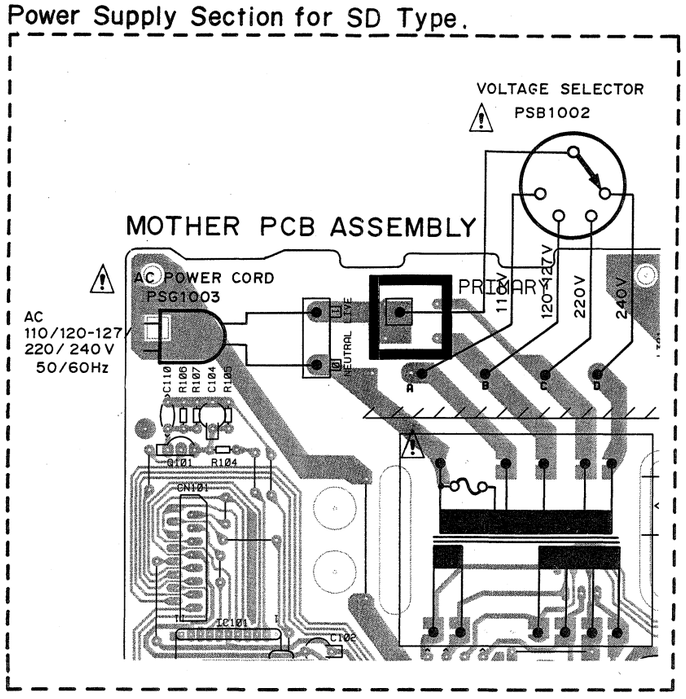
2 While supporting the spindle motor shaft with the stopper, put spacer on top of the motor base (angled so it doesn't touch section Ⓑ), and stick the disc table on top (takes about 9kg pressure). Take off the spacer.

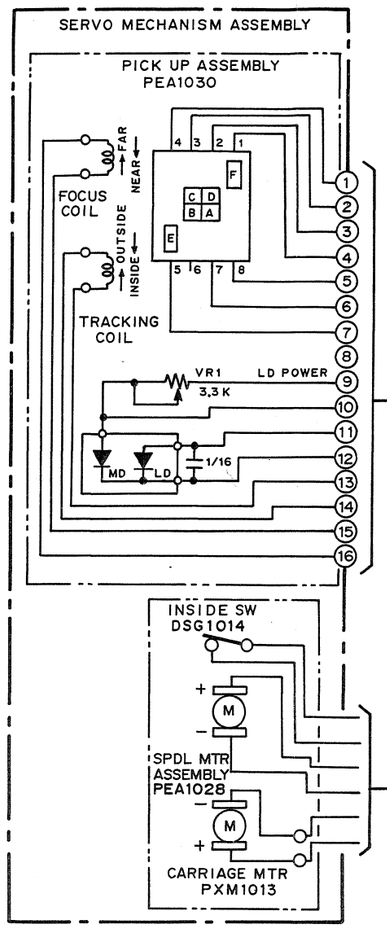


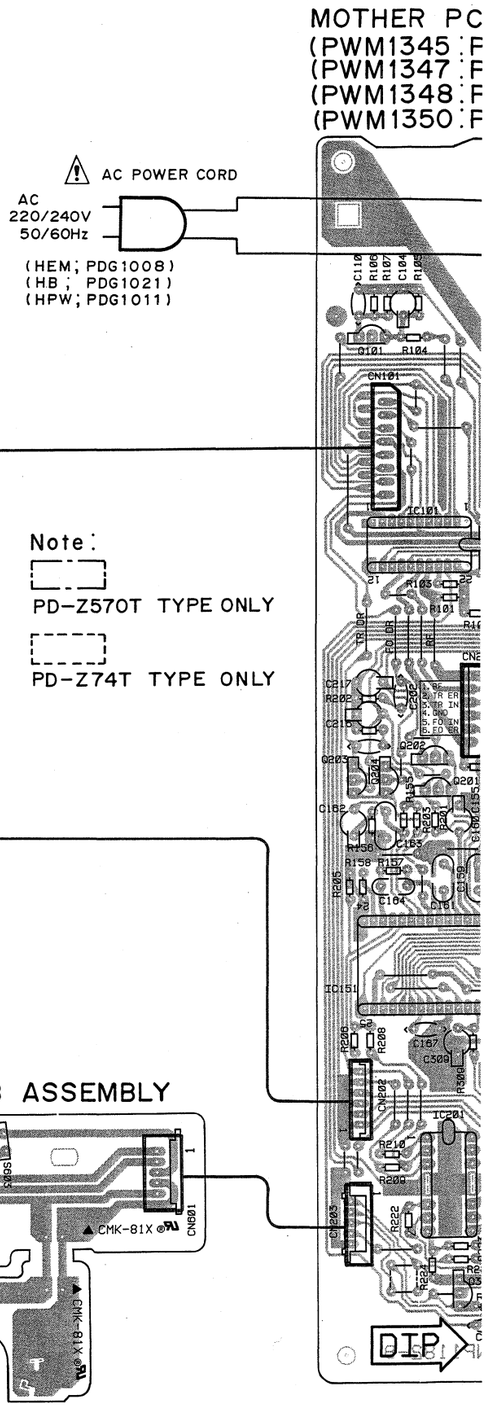
6. P.C. BOARDS CONNECTION DIAGRAM

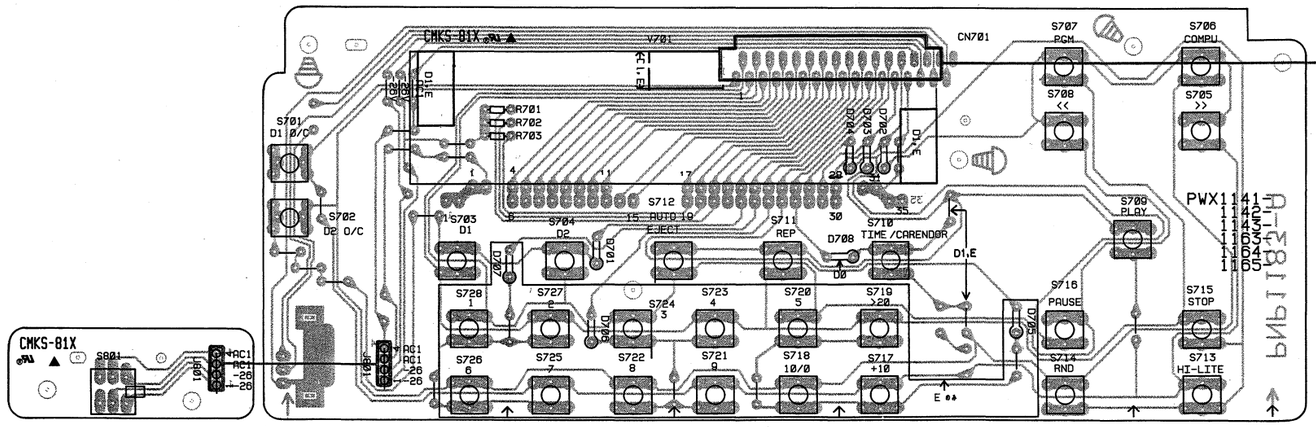
P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
		FET			Mylar capacitor
		Diode			Styrol capacitor
		Zenner diode			Electrolytic capacitor (Non polarized)
		Tact switch			Electrolytic capacitor (Noiseless)
		LED			Electrolytic capacitor (Polarized)
		Varactor			Electrolytic capacitor (Polarized)
		Inductor			Power capacitor
		Coil			Semi-fixed resistor
		Transformer			Resistor array
		Filter			Resistor
					Resonator
					Thermistor

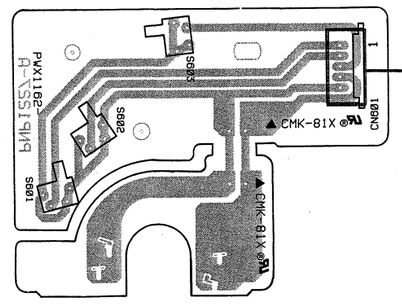
1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.











Parts List of Mechanism Section

Mark	No.	Symbol & Description	Part No.
	1	Clamp spring	PBH1103
	2	Lever spring	PBH1104
	3	Belt	PEB1106
	4	Motor pulley	PNW1634
	5	Tray 1	PNW1839
	6	Tray 2	PNW1840
	7	Sub tray	PNW1841
	8	Loading base	PNW1842
	9	Main cam	PNW1843
	10	Follow gear	PNW1844
	11	Gear 1	PNW1845
	12	Gear 2	PNW1846
	13	Idler gear	PNW1847
	14	Clamper arm U	PNW1850
	15	Clamper arm B	PNW1851
	16	Clamp cam	PNW1852
	17	Float base	PNW1853
	18	Lock lever	PNW1854
	19	Motor (LOADING)	PXM1010
	20	Floating rubber	PEB1014
	21	Floating rubber	PEB1132
	22	Screw	PBA1048
	23	Screw	IPZ30P080FMC
	24	Screw	IPZ20P080FMC
	25	Chip capacitor	CKSYF105Z16
	26	Screw	JFZ20P025FMC
	27	Drive spring	PBH1084
	28	Plate spring	PBK1057
	29	Belt	PEB1072
	30	Drive screw	PLA1003
	31	Guide bar	PLA1071
	32	Half nut	PNW1605
	33	Disc table	PNW1608
	34	Pulley	PNW1634
	35	Earth spring	PBH1009
	36	Push switch	DSG1014
	37	Spindle motor assembly (with oil)	PEA1028
	38	Pick – up assembly	PEA1030
	39	Screw	BPZ20P080FZK
	40	Screw	PMZ20P030FMC
	41	Motor (CARRIAGE)	PXM1013
	42	Screw	PBZ30P080FMC
	43	Semi – fixed resistor	PCP1008
	44	Screw	PMZ26P040FMC
	45	Gear pulley	PNW1848
	46	Push spring	PBH1105
	47	Screw	IPZ30P200FMC
	48	Pulley	PNW1066
	49	Screw	IBZ30P120FMC

Mark	No.	Symbol & Description	Part No.
	101	Yoke	
	102	Magnet	
	103	Clamper holder	
	104	Clamper S	
	105	Mechanism P.C.B assembly	
	106	Servo mechanism assembly	
	107	Connector assembly (6P)	
	108	Mechanism chassis	
	109	Motor base	
	110	Mechanism base	
	111	Actuater cover	
	112	Sub plate	

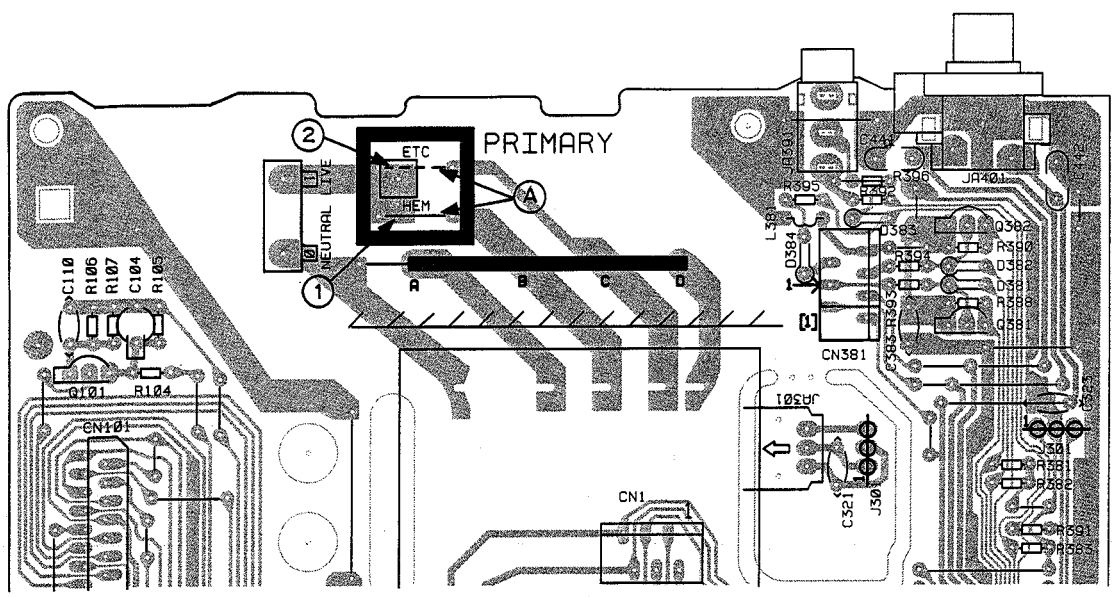
4. LINE VOLTAGE SELECTION FOR HEM, HEMXJ, HB, HPW AND HBXJ TYPES

1. Disconnect the AC power cord.
2. Remove the bonnet.
3. Change the position of the jumper Ⓐ as follows.

Voltage	Jumper Ⓐ position
220V	①
240V	②

4. Stick the line voltage label on the rear panel.

Description	Part No.
220V label	AAX–193
240V label	AAX–192



1. RESISTORS:
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
: DC voltage (V) at no input signal

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5.SWITCH

MECHA PCB Assembly

S601	U
S602	S
S603	L

SUB PCB Assembly

S717	+10
S718	0/10
S719	≧20
S720	5
S721	9
S722	8
S723	4
S724	3
S725	7
S726	6
S727	2
S728	1

(S717-S728:PD-Z570T SERIRS ONLY)

S701	O/C D1
S702	O/C D2
S703	D1
S704	D2
S705	▶▶ (▶▶|)
S706	COMPU
S707	PGM
S708	◀◀ (|◀◀)
S709	▶
S710	TIME
S711	REP
S712	AUTO EJECT
S713	HI LITE
S714	RND
S715	STOP
S716	PAUSE
S801	POWER

The following corresponds with PD4309A.

PD4305A		PD4309A
1pin	⟷	27pin
2pin	⟷	28pin
38pin	⟷	64pin
39pin	⟷	1pin
63pin	⟷	25pin
64pin	⟷	26pin

List of semiconductor terminal voltage

Note: All terminal voltages are measured in the PLAY mode.

The PD-Z570T uses optical output, thus there is no IC401 (TC9237N), IC404(op Amp), Q403-Q405.

IC151
CXA1372S

Pin No.	Volts	Pin No.	Volts
1	0	25	-5
2	0	26	5
3	0	27	5
4	0	28	5
5	0	29	5
6	0	30	5
7	0	31	5
8	0	32	0
9	0	33	5
10	0	34	0
11	-1	35	0
12	0	36	N. C
13	0. 2	37	2. 5
14	0	38	2. 5
15	0	39	5
16	5	40	-1. 5
17	0	41	-1. 7
18	0	42	5
19	0	43	-0. 7
20	0.2~0.8	44	-1. 6
21	0	45	0
22	-4	46	0. 8
23	1. 3	47	-5
24	0	48	0

IC101
CXA1471S

Pin No.	Volts	Pin No.	Volts
1	N. C	16	0
2	2. 9	17	0
3	-4. 7	18	0. 8
4	0	19	0
5	0	20	5
6	-5	21	5
7	0	22	N. C
8	0		
9	N. C		
10	0		
11	N. C		
12	N. C		
13	-0. 9		
14	-0. 7		
15	0		

D-Z74T, PD-Z570T

IC20
M5298P

Pin No.	Volts
1	−8. 2
2	N. C
3	−5
4	0
5	−8. 2
6	N. C
7	N. C
8	N. C
9	5
10	N. C
11	0. 7
12	5
13	8
14	5
15	1. 2
16	8

IC201
LA6520

Pin No.	Volts
1	0
2	0
3	−0. 7
4	0
5	0
6	0
7	1. 7
8	1. 7
9	0. 7
10	0
11	0
12	8
FIN	−8. 2

IC351
PD4305A

Pin No.	Volts	Pin No.	Volts	Pin No.	Volts	Pin No.	Volts
1	−10	17	1. 8	33	0	49	−22
2	−13. 5	18	0	34	5	50	0
3	−5. 5	19	5	35	0	51	5
4	−10. 5	20	0. 5	36	0	52	0
5	2. 1	21	5	37	0	53	0
6	4. 8	22	0	38	0	54	−26
7	4. 5	23	0	39	5	55	−26
8	3. 9	24	0	40	−22	56	−26
9	2. 3	25	5	41	−22	57	−5
10	0	26	5	42	−22	58	−9
11	5	27	5	43	−22	59	−11
12	2. 5	28	5	44	−22	60	5
13	5	29	5	45	−22	61	−2. 5
14	5	30	2. 5	46	−22	62	2
15	5	31	2. 5	47	−22	63	−2. 5
16	0	32	0	48	−22	64	5

IC404
NJM4558D−D

Pin No.	Volts
1	−0. 2
2	1
3	1
4	−5
5	1
6	1
7	−0. 2
8	5

IC401
TC9237N

Pin No.	Volts
1	5
2	0
3	5
4	5. 5
5	2. 5
6	2. 5
7	0
8	0
9	2. 5
10	2. 5
11	5
12	0
13	N. C
14	0
15	0
16	1. 9
17	1. 9
18	5
19	2
20	0
21	0
22	0
23	0
24	5
25	2. 5
26	2. 5
27	2. 5
28	5

IC301
CXD2500Q

Pin No.	Volts	Pin No.	Volts	Pin No.	Volts
1	5	31	N. C	61	N. C
2	N. C	32	2. 5	62	N. C
3	5	33	5	63	0
4	2. 6	34	2. 5	64	N. C
5	N. C	35	2. 5	65	0
6	5	36	N. C	66	3.3~4.6
7	N. C	37	N. C	67	5
8	N. C	38	N. C	68	0
9	0	39	N. C	69	2.1~3
10	0	40	N. C	70	5
11	N. C	41	N. C	71	5
12	0	42	5	72	5
13	N. C	43	N. C	73	5
14	N. C	44	N. C	74	5
15	N. C	45	N. C	75	5
16	N. C	46	4. 4	76	0
17	0	47	0	77	5
18	2. 5	48	0	78	5
19	2. 4	49	0~0.3	79	5
20	2. 4	50	N. C	80	0
21	0	51	N. C		
22	2. 5	52	0		
23	5	53	2. 5		
24	2. 5	54	N. C		
25	N. C	55	0		
26	0	56	N. C		
27	2. 5	57	N. C		
28	0	58	N. C		
29	N. C	59	0		
30	0	60	N. C		

ection for SD Type.

VOLTAGE SELECTOR
PSB1002

ER PCB ASSEMBLY

R CORD

PRIMARY

110V 120V 127V 220V 240V

SERVO MECHANISM ASSEMBLY

PICK UP ASSEMBLY
PEA1030

FOCUS COIL

TRACKING COIL

FAR NEAR OUTSIDE INSIDE

VR1 3.3K LD POWER

MD LD 1/16

INSIDE SW
DSG1014

SPDL MTR
ASSEMBLY
PEA1028

CARRIAGE MTR
PXM1013

AC POWER CORD

AC
220/240V
50/60Hz

(HEM; PDG1008)
(HB ; PDG1021)
(HPW; PDG1011)

Note:

PD-Z570T TYPE ONLY

PD-Z74T TYPE ONLY

MOTHER PCB ASSEMBLY
(PWM1345:PD-Z570T/HEM)
(PWM1347:PD-Z570T/SD)
(PWM1348:PD-Z74T/SD)
(PWM1350:PD-Z74T/HEM,HB,HPW)

PRIMARY

ETC
HEM

PWM1345
1346
1348
1349
1350
1434
1435
1436

)

MECHA PCB ASSEMBLY

PWX1162

CMK-81X

CN601

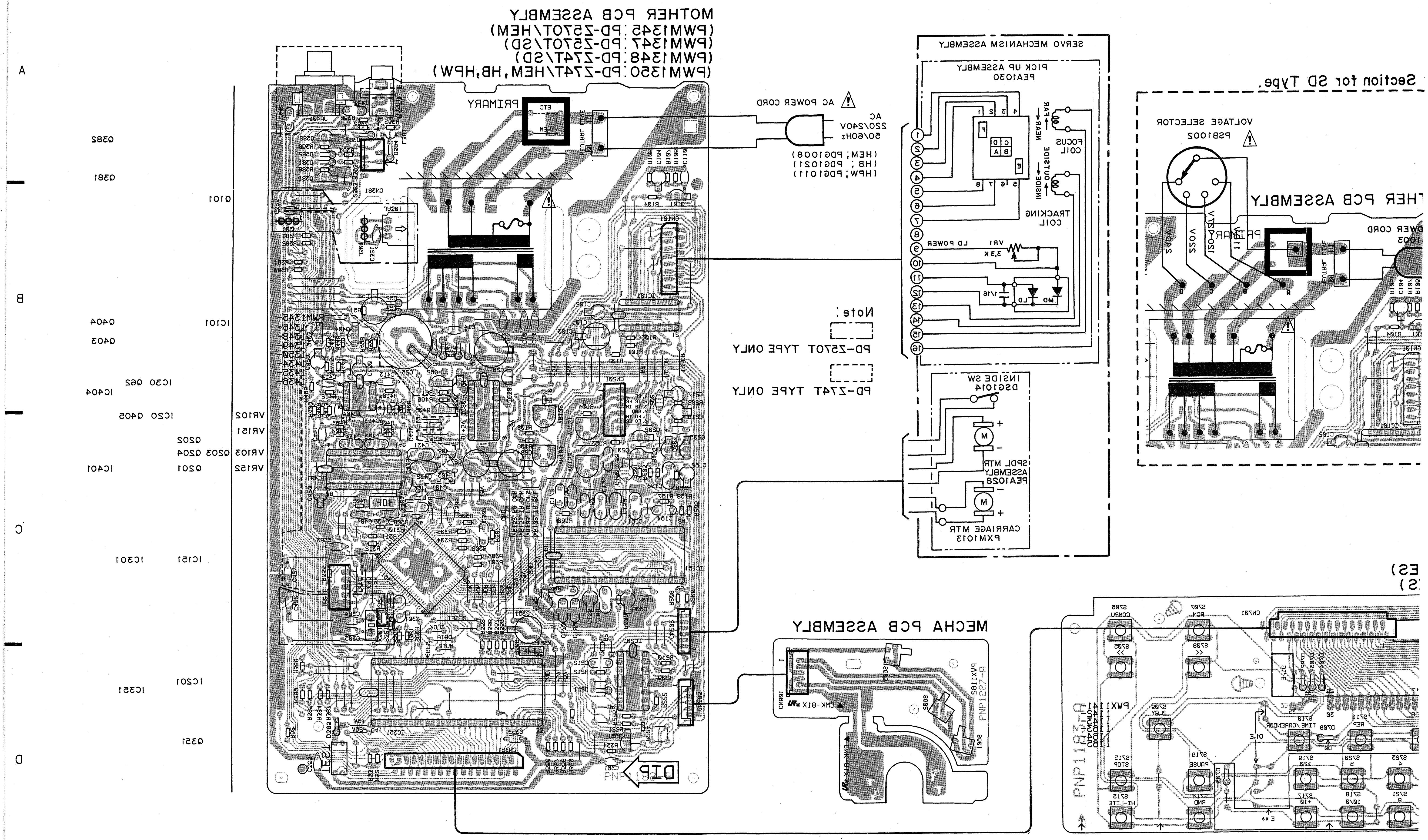
S707 PGM
S706 COMPU
S708 <<
S705 >>
S709 PLAY
S711 REP
S710 TIME/CARENDOR
S720 5
S719 >20
S718 10/0
S717 +10
S716 PAUSE
S714 RND
S715 STOP
S713 HI-LITE

PWX1141
1142
1143
1153
1154
1155

CN701

DIP

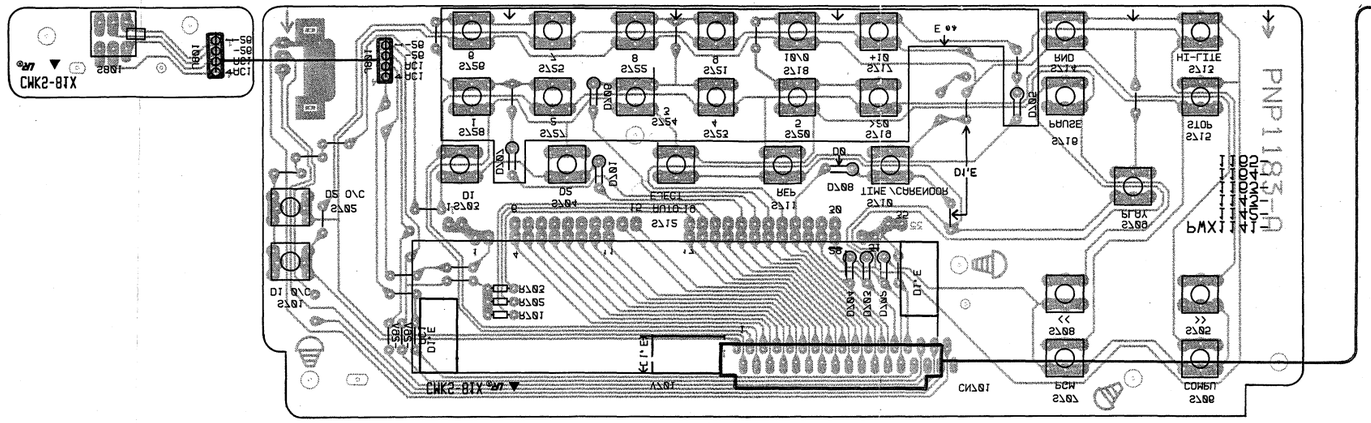
				A
		Q382		
		Q381		—
	Q101			
				B
	IC101	Q404		
		Q403		
		IC30 Q62	IC404	
VR102		IC20 Q405		—
VR151		Q202		
VR103	Q203 Q204			
VR152		Q201	IC401	
				C
	IC151		IC301	
				—
	IC201		IC351	
	Q351			
				D


MOTHER PCB ASSEMBLY
(PWM1345 : PD-Z570T/HEM)
(PWM1347 : PD-Z570T/SD)
(PWM1348 : PD-Z74T/SD)
(PWM1350 : PD-Z74T/HEM, HB, HPW)
PRIMARY
AC POWER CORD
AC 220/240V 50/60Hz
(HEM ; PDG1008)
(HB ; PDG1021)
(HPW ; PDG1011)
SERVO MECHANISM ASSEMBLY
PICK UP ASSEMBLY
PEA1030
FOCUS COIL
TRACKING COIL
LD POWER
VR1 3.3 K
Note :
PD-Z570T TYPE ONLY
PD-Z74T TYPE ONLY
INSIDE SW
DSG1014
SPDL MTR ASSEMBLY
PEA1028
CARRIAGE MTR
PXM1013
Section for SD Type.
VOLTAGE SELECTOR
PSB1002
MECHA PCB ASSEMBLY
DIP

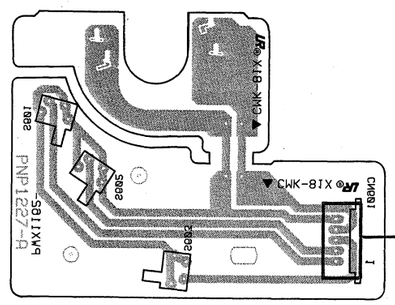
P.C. BOARDS CONNECTION DIAGRAM

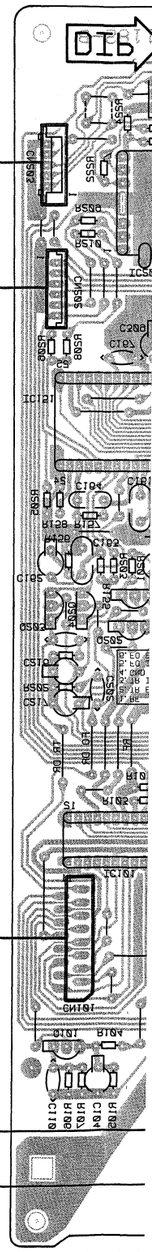
This P.C.B. connection diagram is viewed from the foil side.

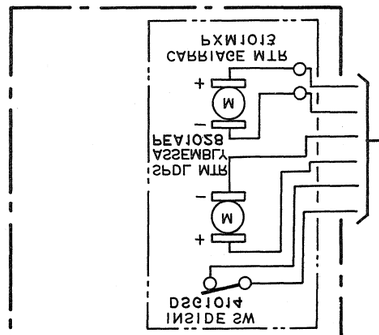
SUB PCB ASSEMBLY
(PWX1141 : PD-Z250T SERIES)
(PWX1145 : PD-Z25AT SERIES)

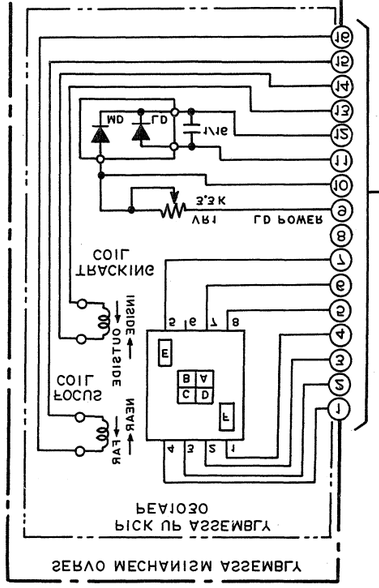


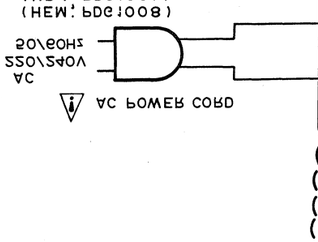
MECHA PCB ASSEMBLY







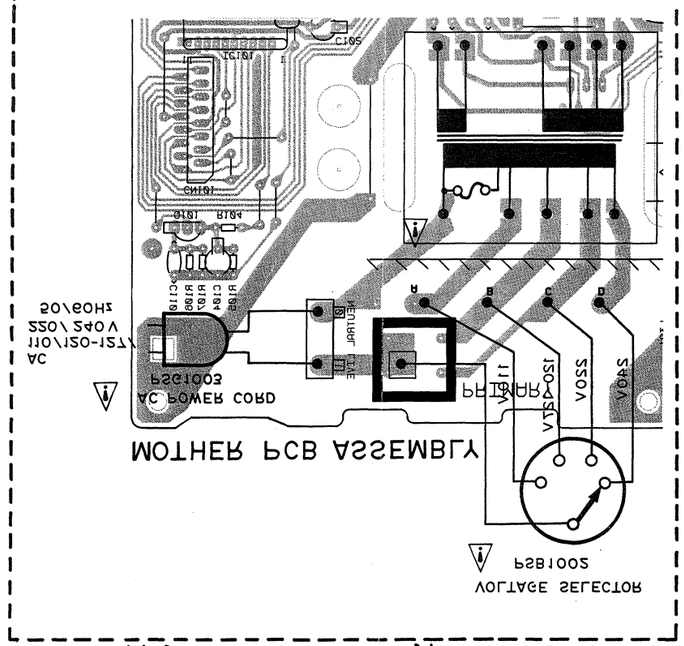




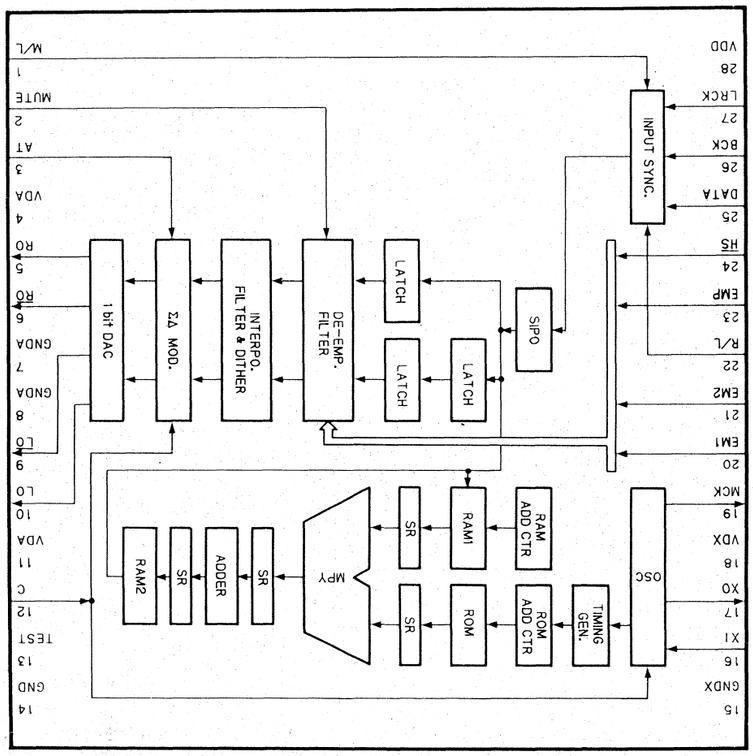
PD-Z25AT TYPE ONLY

PD-Z250T TYPE ONLY

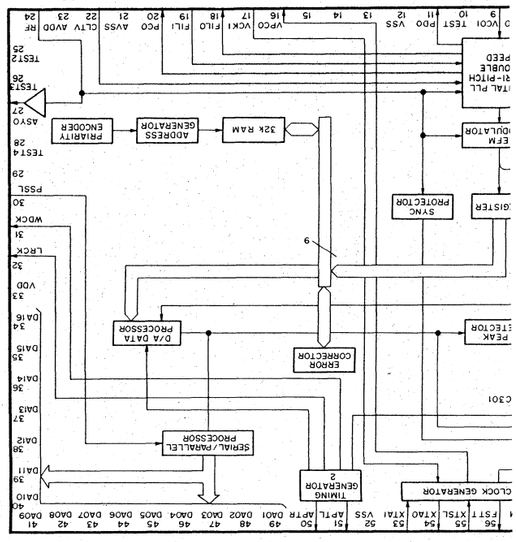
Note :



Power supply section for SD Type.



TC9237N



5. SCHEMATIC DIAGRAM

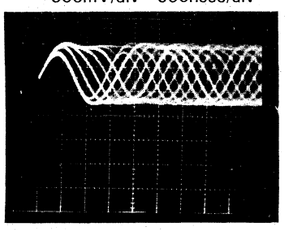
5.1 WAVEFORMS

Note: The encircled numbers denote measuring points in the schematic diagram.

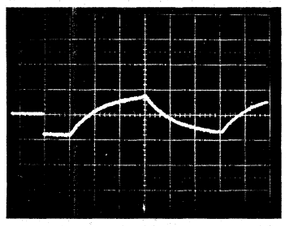
*1 50T-JUMP: After switching to the pause mode, press the manual search key.

*2 FOCUS-IN: Press the key without loading a disc.

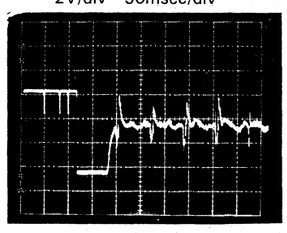
② TP1-Pin 1: PLAY MODE (RF)
500mV/div 500nsec/div



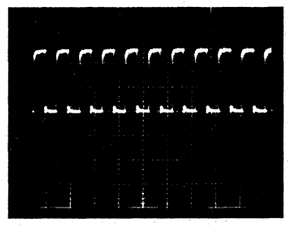
⑤ Q201 Emitter: FOCUS-IN (*2) MODE (FODR)
1V/div 200msec/div



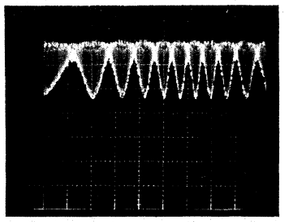
⑦ IC201-Pin 9: TRACK SEARCH MODE (SPDR)
2V/div 50msec/div



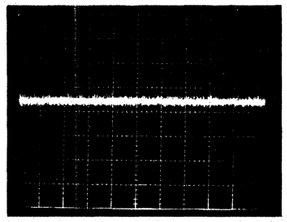
⑯ IC301-Pin 35: PLAY MODE (1kHz) (BCLK)
2V/div 500nsec/div



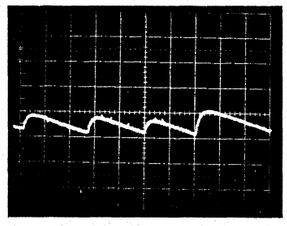
② TP1-Pin 1: TRACK SEARCH MODE (RF)
500mV/div 200μsec/div



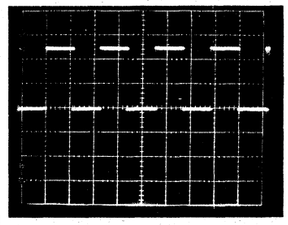
⑤ Q201 Emitter: PLAY MODE (FODR)
1V/div 1msec/div



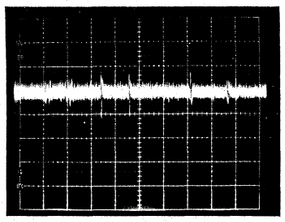
⑧ IC201-Pin 3: PLAY MODE (CADR)
1V/div 2S/div



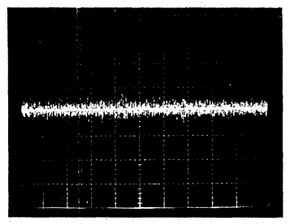
⑱ IC301-Pin 32: PLAY MODE (1kHz) (LRCK)
2V/div 10μsec/div



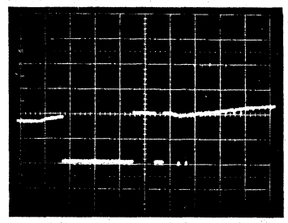
③ TP1-Pin 6: PLAY MODE (FOER)
100mV/div 10msec/div



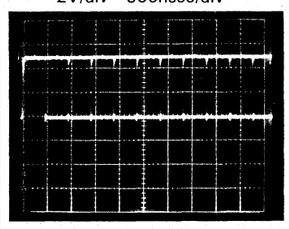
⑥ Q203 Emitter: PLAY MODE (TRDR)
500mV/div 1msec/div



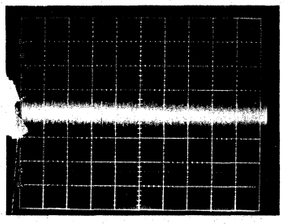
⑧ IC201-Pin 3: TRACK SEARCH MODE (CADR)
2V/div 200msec/div



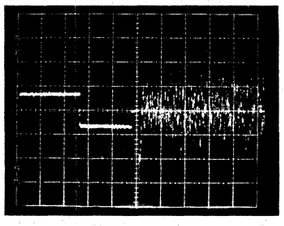
⑲ IC301-Pin 34: PLAY MODE (1kHz) (DATA)
2V/div 500nsec/div



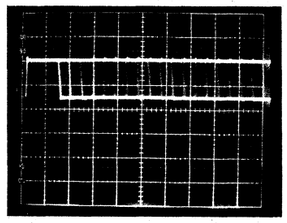
④ TP1-Pin 2: PLAY MODE (TRER)
1V/div 10msec/div



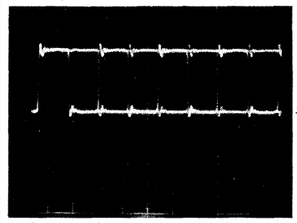
⑥ Q203 Emitter: 50T-JUMP (*1) MODE (TRDR)
500mV/div 1msec/div



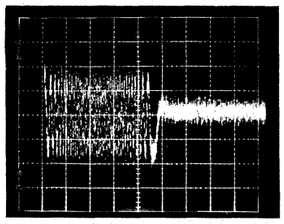
⑨ IC151-Pin 38: PLAY MODE (EFM)
2V/div 500nsec/div



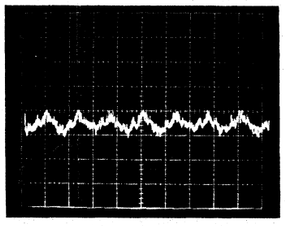
⑳ IC401-Pin 9, Pin 10: PLAY MODE (1kHz) (D/A OUT)
2V/div 0.1μsec/div



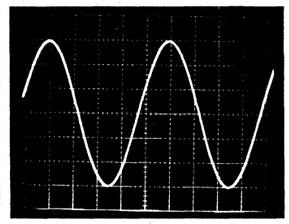
④ TP1-Pin 2: 50T-JUMP (*1) MODE (TRER)
1V/div 1msec/div

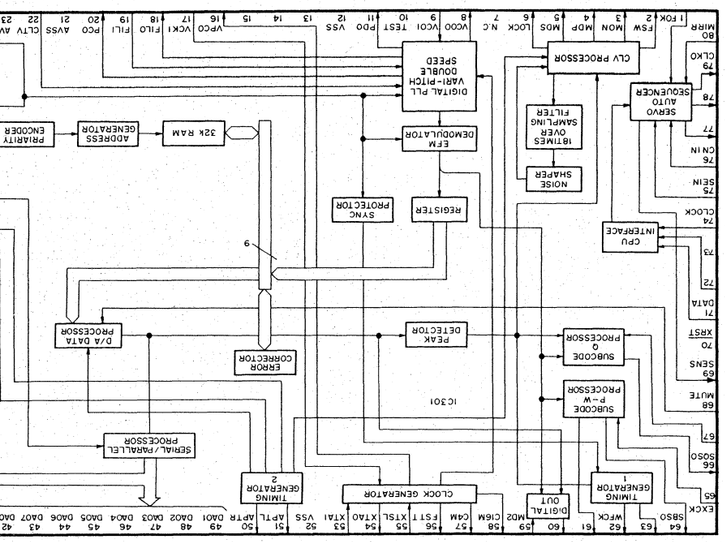


⑦ IC201-Pin 9: PLAY MODE (SPDR)
1V/div 50msec/div

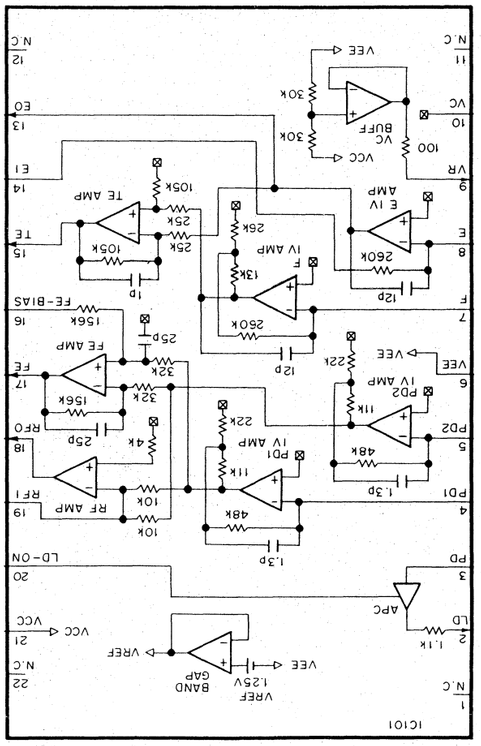


㉑ Pin -OUTPUT: PLAY MODE (1kHz)
1V/div 200μsec/div

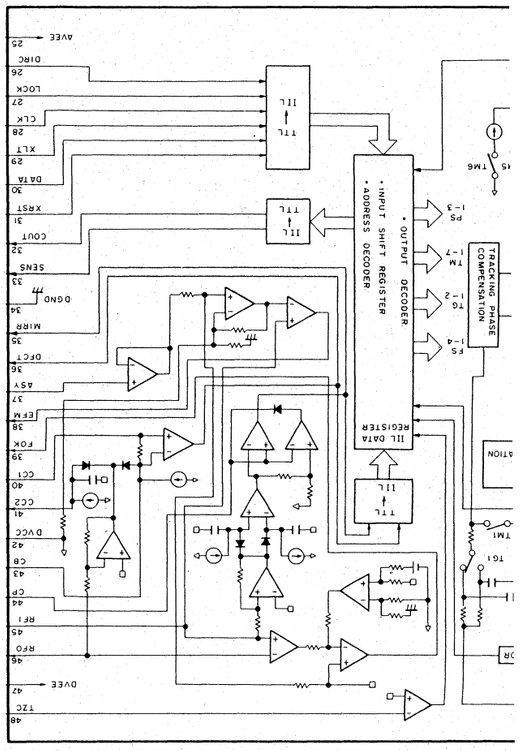




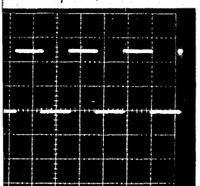
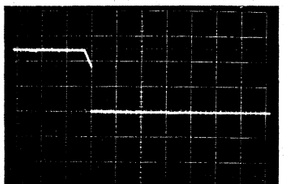
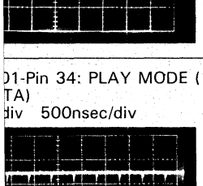
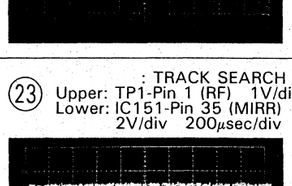
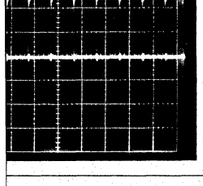
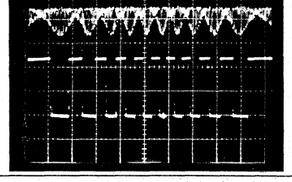
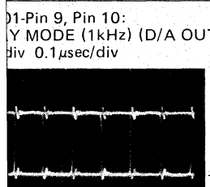
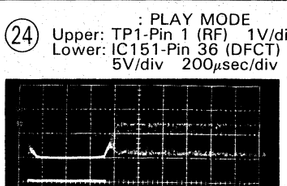
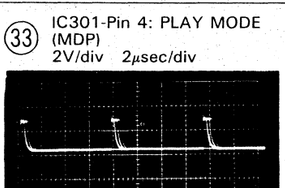
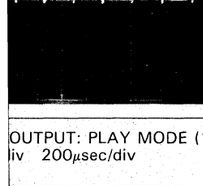
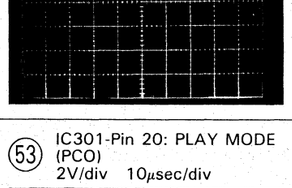
CXD2500Q

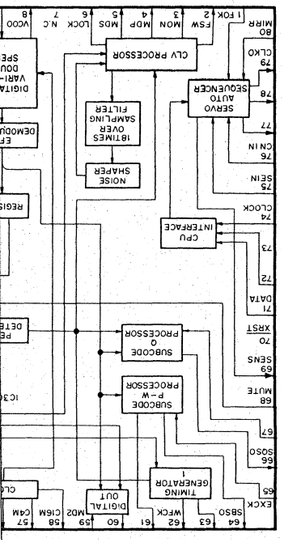


CXA1471S

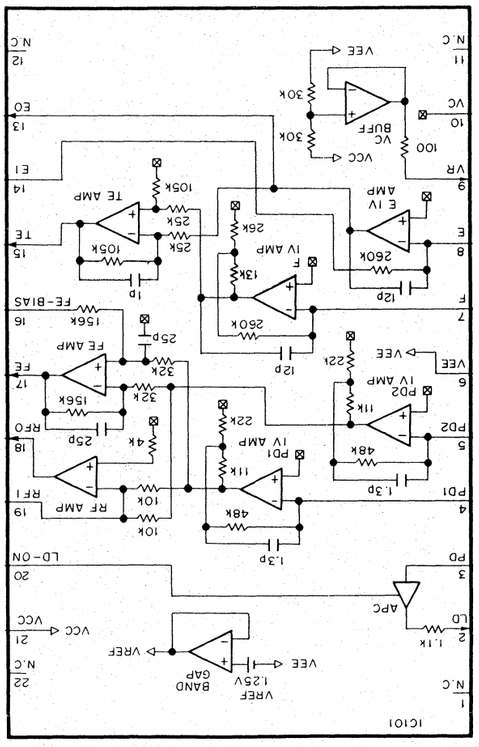


PI

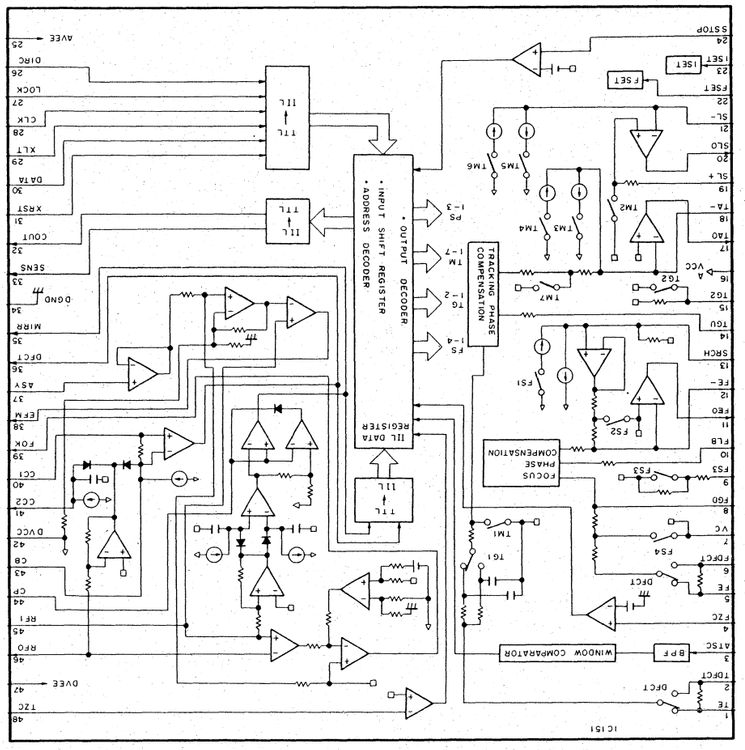
01-Pin 35: PLAY MODE (1kHz) LK) div 500nsec/div  – GND	(22) IC20-Pin 9: POWER SWITCH-ON (RST) 2V/div 100msec/div  – GND	(26)
01-Pin 32: PLAY MODE (1kHz) CK) div 10μsec/div  – GND	(22) IC20-Pin 9: POWER SWITCH-OFF (RST) 2V/div 100msec/div  – GND	(27)
01-Pin 34: PLAY MODE (1kHz) TA) div 500nsec/div  – GND	(23) : TRACK SEARCH MODE Upper: TP1-Pin 1 (RF) 1V/div Lower: IC151-Pin 35 (MIRR) 2V/div 200μsec/div  – GND – GND	(28)
01-Pin 9, Pin 10: Y MODE (1kHz) (D/A OUT) div 0.1μsec/div  – GND	(24) : PLAY MODE Upper: TP1-Pin 1 (RF) 1V/div Lower: IC151-Pin 36 (DFCT) 5V/div 200μsec/div  – GND – GND	(33) IC301-Pin 4: PLAY MODE (MDP) 2V/div 2μsec/div  – GND
OUTPUT: PLAY MODE (1kHz) iv 200μsec/div  – GND	(25)	(53) IC301-Pin 20: PLAY MODE (PCO) 2V/div 10μsec/div  – GND



CXD2500Q



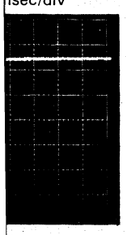
CXA1471S



CXA1372S

PD-Z74T, PD-Z570T

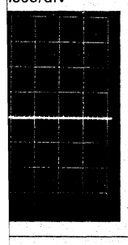
OWER SWITCH-ON
nsec/div



— GND

(26)

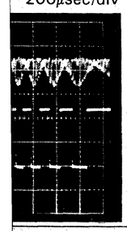
OWER SWITCH-OFF
nsec/div



— GND

(27)

RACK SEARCH MODE
n 1 (RF) 1V/div
Pin 35 (MIRR)
200μsec/div

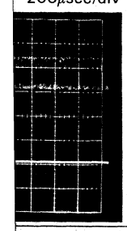


— GND

— GND

(28)

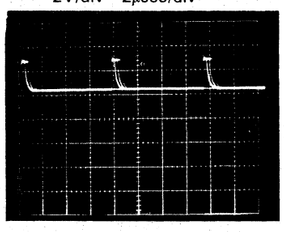
AY MODE
n 1 (RF) 1V/div
Pin 36 (DFCT)
200μsec/div



— GND

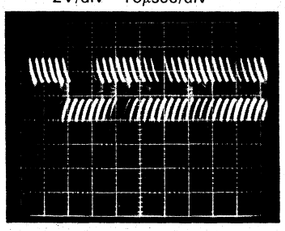
— GND

(33) IC301-Pin 4: PLAY MODE
(MDP)
2V/div 2μsec/div



— GND

(53) IC301-Pin 20: PLAY MODE
(PCO)
2V/div 10μsec/div



— GND

5.2 SCHEMATIC DIAGRAM

MECHA POSITION	TRY1	TRY2	TSEL	TRY2
	OPEN	CLAMP	L	H	L
	CLOSE/OPEN	CLAMP	H	H	L
	HOME	CLAMP	H	L	L
	CHANGE	CHANGE	H	L	H
	CHANGE	CHANGE	H	H	H
	CLAMP	HOME	L	H	H
	CLAMP	CLOSE/OPEN	L	L	H
	CLAMP	OPEN	L	L	L

: Foucus servo loop
: Signal route
: Tracking servo lo
: Carriage servo lo
: Loading motor ro
: Spindle motor ro
: Measurement poin

⚠ MOTHER PCB ASS'Y
PWM1 345 (PD-Z570T/HEM)
PWM1 346 (PD-Z570T/SD)
PWM1 347 (PD-Z74T/HEMXJ, HBXJ)
PWM1 348 (PD-Z74T/SD)
PWM1 350 (PD-Z74T/HEM, HB, HPW)

PD-Z570T SERIES ONLY

PD-Z74T SERIES ONLY

IC301 CXD2500Q (DECODER)

IC401 TC9237N: DIGITAL FILTER & D/A CONVERTER

IC404(1/2) NJM4558D-D: LOW PASS FILTER

IC404(2/2) NJM4558D-D

PD-Z74T SERIES ONLY

IC351 PD4305B (SYSTEM CONTROL)

Note:
The IC351 is replaced by PD4309A in the PD-Z74T /HEMXJ and HBXJ types.
PD4305B and PD4309A show different pin arrangements, but their functions are indentical.

TYPE	R392
PD-Z74T SERIES	9.1k
PD-Z570T SERIES	10k

IC20: SYSTEM RESET & ±5V REGULATOR

Q62: REGULATOR ON/OFF

IC20 M5298P

Q381: BUFFER

Q382: BUFFER

PD-Z74T SERIES ONLY

PTT1125

FOR HEM, HB, HPW, HEMXJ, HBXJ TYPES

HPW: PDG1011
HEM, HEMXJ: PDG1008
HB, HBXJ: PDG1021

Cord with Connector
PDE1114 (Z570T)
PDE1067 (Z74T)

NOTES
CAPACITORS
M Mylar
CH Ceramic
YB Ceramic
YX Ceramic
Un Marked
RESISTORS
1/6W type:
Rating Ide
VR Ω
VRTB6VS

TYPE	D54
PD-Z74T/HEM, HPW, HB, SD	MTZJ16B
PD-Z74T/HEMXJ, HBXJ	
PD-Z570T SERIES	MTZJ18B

Note:
PD-Z74T SERIES: PD-Z74T/HEM, HB, HEMX
PD-Z570T SERIES: PD-Z570T/HEM, SD TYP

OTHER PCB ASS'Y
WM1 345 (PD-Z570T/HEM)
WM1 346 (PD-Z570T/SD)
WM1 347 (PD-Z74T/HEMXJ, HBXJ)
WM1 348 (PD-Z74T/SD)
WM1 350 (PD-Z74T/HEM, HB, HPW)

PD-Z570T SERIES ONLY
V+5
C321 0.01 μF
U301
JA301 TOTX178 WMDA11
C323 0.01 μF
R321 1K

: Foucus servo loop
: Signal route
: Tracking servo loop
: Carriage servo loop
: Loading motor route
: Spindle motor route
▶ : Measurement point

IC401: DIGITAL FILTER & D/A CONVERTER
IC401 TC9237N
R405 1K
R312 470
R311 470
R310 470
C435 0.01 μF
C403 47P CH
C404 47P CH
47P X401 PSS1006
0.22μH L401
C421 0.047
R308 10K
C308 0.01
R309 100K
C309 0.47/50
C361 0.01
L402 1μH
L403 1μH
C431 0.1
C432 0.1
C433 0.01
C434 0.01
R401 18K
R402 18K
R403 18K
R404 18K
R406 36K
R407 36K
R408 36K
R409 36K
C410 56P SL
C411 56P SL
R410 47K
C412 39P CH
R411 47K
C413 39P CH
R413 47K
C415 39P CH
IC404(1/2) NJM4558D-D
IC404(2/2) NJM4558D-D
IC404(1/2), (2/2): LOW PASS FILTER
R412 47K
C414 39P CH
C430 22/25
C429 22/25
R448 1K
R444 22K
R443 22K
R447 1K
R496 1.5K
R495 47K
Q405 DTC124ES
Q405: MUTE DRIVE
Q403, Q404: MUTE
Q404 2SD2144S
Q403 2SD2144S
R498 470
R497 470
C442 0.0015M
C441 0.0015M
JA401 PKB1009
R353 10K
C383
PD-Z74T SERIES ONLY

Cord with Connector
PDE1114 (Z570T)
PDE1067 (Z74T)
Connect With AMP

NOTES

CAPACITORS	μF
M Mylar	CQMA
CH Seramic	CCCCH
YB Seramic	CKCYB
YX Seramic	CGCYX
Un Marked Type	CKCYF

TRANSISTOR
PNP type: DTA124ES
NPN type: DTC124ES
OTHERS
⏚ : Chassis Ground

RESISTORS Ω
1/6W type:
Rating Identified where used

VR Ω
VRTB6VS

Q381: BUFFER
2SC1740S Q381
R387 22K
R388 22K
C384 0.01
PD-Z74T SERIES ONLY
R381 56K
R384 22K
D381 1SS254
2SC1740S Q382
R389 22K
R390 22K
Q382: BUFFER
R382 100K
R385 22K
D382 1SS254
R386 22K
R383 100K
R393 560
R394 560
L381 1μH
CN381 KPE4
EN/REQ
DATA
CLK
GND
D384 1SS254
R395 1K
D383 1SS254
D385 1SS254
R392
1K R396
R392 9.1K JA391 PKN1004
R391 1M
PD-Z74T SERIES ONLY

TYPE	R392
PD-Z74T SERIES	9.1k
PD-Z570T SERIES	10k

IC351 PD4305B
(SYSTEM CONTROL)
VSS1014 X351
R352 10K
R360 10K
R356 10K
R357 10K
R358 10K
R359 10K
R355 10K
R367 10K
R368 10K
R369 10K
R370 10K
TEST MODE
Note:
The IC351 is replaced by PD4309A in the PD-Z74T /HEMXJ and HBXJ types.
PD4305B and PD4309A show different pin arrangements, but their functions are indentical.

FLAT PACKAGE (Pin NO.)
IC351 PD4309A
FOR PD-Z74T/HEMXJ AND HBXJ TYPES ONLY
(SYSTEM CONTROL)

IC20: SYSTEM RESET & ±5V REGULATOR
C401 0.01
Q62: REGULATOR ON/OFF
Q62 2SC1740S
R61 10K
R62 22K
C60 1/50
C27 470/6.3
C25 3300/16
IC20 M5298P
C28 100/10
C26 2200/16
ICP-N10 IC30
R51 10K
C52 100/35
D52 11ES2
D11 11ES2
D12 11ES2
D13 11ES2
D14 11ES2
C14 0.01
C13 0.01
C12 0.01
C11 0.01
R52 1K
R53 1K
D54
C351 470/6.3
C355 0.01

HPW: PDG1011
HEM, HEMXJ: PDG1008
HB, HBXJ: PDG1021
PTT1125
240V
220V
0V
FOR HEM, HB, HPW, HEMXJ, HBXJ TYPES

RDG1003
PSB1002
PTT1126
RKC-059
240V
220V
120-127V
110V
0V
FOR SD TYPE

TYPE	D54
PD-Z74T/HEM, HPW, HB, SD	MTZJ16B
PD-Z74T/HEMXJ, HBXJ	
PD-Z570T SERIES	MTZJ18B

Note:
PD-Z74T SERIES: PD-Z74T/HEM, HB, HEMXJ, SD, HPW TYPES.
PD-Z570T SERIES: PD-Z570T/HEM, SD TYPES.

7. P.C.B's PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%)

560 Ω → $56 \times 10^1 \rightarrow 561$ ..... RD1/4PS 5 6 1 J
47k Ω → $47 \times 10^3 \rightarrow 473$ ..... RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ..... RN2H 0 R 5 K
1 Ω → 010 ..... RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → $562 \times 10^1 \rightarrow 5621$ ..... RN1/4SR 5 6 2 1 F

Mark	No.	Symbol & Description	Part No.
		⊙ MOTHER BOARD ASSEMBLY (PWM1350)(For PD-Z74T/HEM)	
		SEMICONDUCTORS	
⚠		IC20 REGULATOR IC	M5298P
⚠		IC30 IC PROTECTOR	ICP-N10
		IC101 PRE AMP IC	CXA1471S
		IC151 SERVO IC	CXA1372S
⚠		IC201 POWER OP-AMP, IC	LA6520
		IC301 EFM DEMODULATION IC	CXD2500Q
		IC351 MICROCOMPUTER	PD4305B
		IC401	TC9237N
		IC404 OP-AMP IC	NJM4558D-D
		Q62 TRANSISTOR	2SC1740S
		Q101 TRANSISTOR	2SA854S
		Q201 TRANSISTOR	2SC3581
		Q202 TRANSISTOR	2SA1399
		Q203 TRANSISTOR	2SC3581
		Q204 TRANSISTOR	2SA1399
		Q381, 382 TRANSISTOR	2SC1740S
		Q403, 404 TRANSISTOR	2SD2144S
		Q405 TRANSISTOR	DTC124ES
⚠		D11-14 DIODE	11ES2
⚠		D52 DIODE	11ES2
		D54 ZENNER DIODE	MTZJ16B
		D211 ZENNER DIODE	MTZJ6.2B
		D381-385 DIODE	1SS254
		COILS/TRANSFORMERS	
		L381 AXIAL INDUCTOR	LAU010K
		L401 AXIAL COIL	LAUR22K
		L402, 403 AXIAL INDUCTOR	LAU010K
		CAPACITORS	
		C11-14 CERAMIC CAPACITOR	CKCYF103Z50
		C25 ELECTR. CAPACITOR	CEAS332M16
		C26 ELECTR. CAPACITOR	CEAS222M16
		C27 ELECTR. CAPACITOR	CEAS471M6R3
		C28 ELECTR. CAPACITOR	CEAS101M10
		C52 ELECTR. CAPACITOR	CEAS101M35
		C60 ELECTR. CAPACITOR	CEAS010M50
		C101 ELECTR. CAPACITOR	CEAS471M6R3
		C102 ELECTR. CAPACITOR	CEAS101M10
		C103 CERAMIC CAPACITOR	CCCCH180J50
		C104 ELECTR. CAPACITOR	CEAS101M10
		C110 CERAMIC CAPACITOR	CKCYF103Z50
		C153 ELECTR. CAPACITOR	CEAS101M10
		C155 MYLOR FILM CAPACITOR	CQMA182J50
		C156 MYLOR FILM CAPACITOR	CQMA333K50
		C157 MYLOR FILM CAPACITOR	CQMA103K50
		C158, 159 MYLOR FILM CAPACITOR	CQMA104K50
		C160 ELECTR. CAPACITOR	CEAS4R7M50
		C161 MYLOR FILM CAPACITOR	CQMA104K50
		C162 ELECTR. CAPACITOR	CEAS010M50
		C163 MYLOR FILM CAPACITOR	CQMA104K50
		C164 MYLOR FILM CAPACITOR	CQMA103K50
		C167 CERAMIC CAPACITOR	CKCYF103Z50
		C168 MYLOR FILM CAPACITOR	CQMA333K50
		C169 MYLOR FILM CAPACITOR	CQMA103K50
		C170 MYLOR FILM CAPACITOR	CQMA332J50
		C171 MYLOR FILM CAPACITOR	CQMA472J50
		C172 MYLOR FILM CAPACITOR	CQMA472K50
		C202 CERAMIC CAPACITOR	CKCYF103Z50
		C212 MYLOR FILM CAPACITOR	CQMA103K50
		C216, 217 ELECTR. CAPACITOR	CEAS330M16
		C301 MYLOR FILM CAPACITOR	CQMA104K50
		C306 CERAMIC CAPACITOR	CKCYB152K50
		C307 MYLOR FILM CAPACITOR	CQMA473J50
		C308 MYLOR FILM CAPACITOR	CQMA103K50
		C309 ELECTR. CAPACITOR	CEASR47M50
		C351 ELECTR. CAPACITOR	CEAS471M6R3
		C353 CERAMIC CAPACITOR	CKCYF103Z50
		C355 CERAMIC CAPACITOR	CKCYF103Z50
		C361 CERAMIC CAPACITOR	CKCYF103Z50
		C383, 384 CERAMIC CAPACITOR	CKCYF103Z50
		C401 CERAMIC CAPACITOR	CKCYF103Z50
		C403, 404 CERAMIC CAPACITOR	CCCCH470J50
		C410, 411 CERAMIC CAPACITOR	CCCSL560J50

Mark	No.	Symbol & Description	Part No.
		C412-415 CERAMIC CAPACITOR	CCCCH390J50
		C420 ELECTR. CAPACITOR	CEAS330M16
		C421 CERAMIC CAPACITOR	CKCYF473Z50
		C422 CERAMIC CAPACITOR	CKCYF103Z50
		C429, 430 ELECTR. CAPACITOR	CEAS220M25
		C431, 432 MYLOR FILM CAPACITOR	CQMA104K50
		C433, 434 MYLOR FILM CAPACITOR	CQMA103K50
		C435 CERAMIC CAPACITOR	CKCYF103Z50
		C441, 442 MYLOR FILM CAPACITOR	CQMA152J50
		RESISTORS	
		R51-53 CARBONFILM RESISTOR	RD1/6PM□□□J
		R61, 62 CARBONFILM RESISTOR	RD1/6PM□□□J
		R101-110 CARBONFILM RESISTOR	RD1/6PM□□□J
		R153-158 CARBONFILM RESISTOR	RD1/6PM□□□J
		R160 CARBONFILM RESISTOR	RD1/6PM□□□J
		R201-203 CARBONFILM RESISTOR	RD1/6PM□□□J
		R205, 206 CARBONFILM RESISTOR	RD1/6PM□□□J
		R208-212 CARBONFILM RESISTOR	RD1/6PM□□□J
		R221-224 CARBONFILM RESISTOR	RD1/6PM□□□J
		R301-312 CARBONFILM RESISTOR	RD1/6PM□□□J
		R352, 353 CARBONFILM RESISTOR	RD1/6PM□□□J
		R356-360 CARBONFILM RESISTOR	RD1/6PM□□□J
		R366-369 CARBONFILM RESISTOR	RD1/6PM□□□J
		R381-396 CARBONFILM RESISTOR	RD1/6PM□□□J
		R401-413 CARBONFILM RESISTOR	RD1/6PM□□□J
		R443, 444 CARBONFILM RESISTOR	RD1/6PM□□□J
		R447, 448 CARBONFILM RESISTOR	RD1/6PM□□□J
		R495-498 CARBONFILM RESISTOR	RD1/6PM□□□J
		VR102 VR	RCP1046
		VR103 VR	RCP1044
		VR151, 152 VR	RCP1046
		OTHERS	
		CN101 CONNECTOR	52045-1610
		CN351 CONNECTOR	HLEM30S-1
		CN381 CONNECTOR(4P)	KPE4
		JA391 JACK/12V	PKN1004
		JA401 JACK	PKB1009
		X351 CERAMIC RESONATOR	VSS1014
		X401 XTAL RES (OSC)	PSS1006

Mark	No.	Symbol & Description	Part No.
		⊙ MOTHER BOARD ASSEMBKLY (PWM1345)(For PD-Z570T/HEM)	
		SEMICONDUCTORS	
⚠		IC20 REGULATOR IC	M5298P
⚠		IC30 IC PROTECTOR	ICP-N10
		IC101 PRE AMP IC	CXA1471S
		IC151 SERVO IC	CXA1372S
⚠		IC201 POWER OP-AMP, IC	LA6520
		IC301 EFM DEMODULATION IC	CXD2500Q
		IC351 MICROCOMPUTER	PD4305B
		Q62 TRANSISTOR	2SC1740S
		Q101 TRANSISTOR	2SA854S
		Q201 TRANSISTOR	2SC3581
		Q202 TRANSISTOR	2SA1399
		Q203 TRANSISTOR	2SC3581
		Q204 TRANSISTOR	2SA1399
		Q381, 382 TRANSISTOR	2SC1740S
⚠		D11-14 DIODE	11ES2
⚠		D52 DIODE	11ES2
		D54 ZENNER DIODE	MTZJ18B
		D211 ZENNER DIODE	MTZJ6.2B
		D381-385 DIODE	1SS254
		COILS/TRANSFORMERS	
		L381 AXIAL INDUCTOR	LAU010K
		CAPACITORS	
		C11-14 CERAMIC CAPACITOR	CKCYF103Z50
		C25 ELECTR. CAPACITOR	CEAS332M16
		C26 ELECTR. CAPACITOR	CEAS222M16
		C27 ELECTR. CAPACITOR	CEAS471M6R3
		C28 ELECTR. CAPACITOR	CEAS101M10
		C52 ELECTR. CAPACITOR	CEAS101M35
		C60 ELECTR. CAPACITOR	CEAS010M50
		C101 ELECTR. CAPACITOR	CEAS471M6R3
		C102 ELECTR. CAPACITOR	CEAS101M10
		C103 CERAMIC CAPACITOR	CCCCH180J50
		C104 ELECTR. CAPACITOR	CEAS101M10
		C110 CERAMIC CAPACITOR	CKCYF103Z50
		C153 ELECTR. CAPACITOR	CEAS101M10
		C155 MYLOR FILM CAPACITOR	CQMA182J50
		C156 MYLOR FILM CAPACITOR	CQMA333K50
		C157 MYLOR FILM CAPACITOR	CQMA103K50
		C158, 159 MYLOR FILM CAPACITOR	CQMA104K50
		C160 ELECTR. CAPACITOR	CEAS4R7M50
		C161 MYLOR FILM CAPACITOR	CQMA104K50
		C162 ELECTR. CAPACITOR	CEAS010M50
		C163 MYLOR FILM CAPACITOR	CQMA104K50
		C164 MYLOR FILM CAPACITOR	CQMA103K50
		C167 CERAMIC CAPACITOR	CKCYF103Z50
		C168 MYLOR FILM CAPACITOR	CQMA333K50
		C169 MYLOR FILM CAPACITOR	CQMA103K50
		C170 MYLOR FILM CAPACITOR	CQMA332J50
		C171 MYLOR FILM CAPACITOR	CQMA472J50
		C172 MYLOR FILM CAPACITOR	CQMA472K50
		C202 CERAMIC CAPACITOR	CKCYF103Z50

Mark	No.	Symbol & Description	Part No.
	C212	MYLOR FILM CAPACITOR	CQMA103K50
	C216, 217	ELECTR. CAPACITOR	CEAS330M16
	C301	MYLOR FILM CAPACITOR	CQMA104K50
	C304, 305	CERAMIC CAPACITOR	CCCCH150J50
	C306	CERAMIC CAPACITOR	CKCYB152K50
	C307	MYLOR FILM CAPACITOR	CQMA473J50
	C308	MYLOR FILM CAPACITOR	CQMA103K50
	C309	ELECTR. CAPACITOR	CEASR47M50
	C321	CERAMIC CAPACITOR	CKCYF103Z50
	C323	CERAMIC CAPACITOR	CKCYF103Z50
	C351	ELECTR. CAPACITOR	CEAS471M6R3
	C353	CERAMIC CAPACITOR	CKCYF103Z50
	C355	CERAMIC CAPACITOR	CKCYF103Z50
	C361	CERAMIC CAPACITOR	CKCYF103Z50
	C401	CERAMIC CAPACITOR	CKCYF103Z50
	C422	CERAMIC CAPACITOR	CKCYF473Z50
RESISTORS			
	R51-53	CARBONFILM RESISTOR	RD1/6PM□□□J
	R61, 62	CARBONFILM RESISTOR	RD1/6PM□□□J
	R101-110	CARBONFILM RESISTOR	RD1/6PM□□□J
	R153-158	CARBONFILM RESISTOR	RD1/6PM□□□J
	R160	CARBONFILM RESISTOR	RD1/6PM□□□J
	R201-203	CARBONFILM RESISTOR	RD1/6PM□□□J
	R205, 206	CARBONFILM RESISTOR	RD1/6PM□□□J
	R208-212	CARBONFILM RESISTOR	RD1/6PM□□□J
	R221-224	CARBONFILM RESISTOR	RD1/6PM□□□J
	R301-309	CARBONFILM RESISTOR	RD1/6PM□□□J
	R321	CARBONFILM RESISTOR	RD1/6PM□□□J
	R352	CARBONFILM RESISTOR	RD1/6PM□□□J
	R356-360	CARBONFILM RESISTOR	RD1/6PM□□□J
	R366-369	CARBONFILM RESISTOR	RD1/6PM□□□J
	R381-395	CARBONFILM RESISTOR	RD1/6PM□□□J
	VR102	VR	RCP1046
	VR103	VR	RCP1044
	VR151, 152	VR	RCP1046
OTHERS			
	CN101	CONNECTOR	52045-1610
	CN351	CONNECTOR	HLEM30S-1
	CN381	CONNECTOR(4P)	KPE4
	JA301	OPTICAL OUTPUT JACK	TOTX178
	X301	XTAL RES (OSC)	PSS1006
	X351	CERAMIC RESONATOR	VSS1014

Mark	No.	Symbol & Description	Part No.
⊙ SUB BOARD ASSEMBLY (PWX1142)(For PD-Z74T/HEM)			
SEMICONDUCTORS			
	D701-704	DIODE	1SS254
SWITCHES			
	S701-716	SWITCH	PSG1006
	S801	SWITCH	PSG1007
OTHERS			
	CN701	CONNECTOR	HLEM30R-1
	V701	FL INDICATOR TUBE	PEL1049
⊙ SUB BOARD ASSEMBLY (PWX1141)(For PD-Z570T/HEM)			
SEMICONDUCTORS			
	D701-707	DIODE	1SS254
SWITCHES			
	S701-728	SWITCH	PSG1006
	S801	SWITCH	PSG1007
OTHERS			
	CN701	CONNECTOR	HLEM30R-1
	V701	FL INDICATOR TUBE	PEL1049
MECHANISM P.C.B ASSEMBLY			
SWITCHES			
	S601-603	PUSH SWITCH	DSG1017

8. ADJUSTMENTS

1. Adjustment Methods

If a disc player is adjusted incorrectly or inadequately, it may malfunction or not work at all even though there is nothing at all wrong with the pickup or the circuitry. Adjust correctly following the adjustment procedure.

1-1 Adjustment items/verification items and order

Step	Item	Test point	Adjustment location
1	Focus offset adjustment	TP1, Pin 6 (FCS. ERR)	VR103 (FCS. OFS)
2	Grating adjustment	TP1, Pin 2 (TRK. ERR)	Grating adjustment slit
3	Tracking error balance adjustment	TP1, Pin 2 (TRK. ERR)	VR102 (TRK. BAL)
4	Pickup radial/ tangential direction tilt adjustment	TP1, Pin 1 (RF)	Radial tilt adjustment screw, Tangential tilt adjustment screw
5	RF level adjustment	TP1, Pin 1 (RF)	VR1 (RF level)
6	Focus servo loop gain adjustment	TP1, Pin 5 (FCS. IN) TP1, Pin 6 (FCS. ERR)	VR152 (FCS. GAN)
7	Tracking servo loop gain adjustment	TP1, Pin 3 (TRK. IN) TP1, Pin 2 (TRK. ERR)	VR151 (TRK. GAN)
8	Focus error signal verification	TP1, Pin 6 (FCS. ERR)	———

● **Abbreviation table**

FCS. ERR : Focus Error
FCS. OFS : Focus Offset
TRK. ERR : Tracking Error
TRK. BAL : Tracking Balance
FCS. IN : Focus In
TRK. IN : Tracking In

1-2 Measuring instruments and tools

1. Dual trace oscilloscope (10:1 probe)
2. Low-frequency oscillator
3. Test disc (YEDS-7)
4. 12-cm disc (with at least about 70 minutes of recording)
5. Low-pass filter (39 kΩ + 0.001 μF)
6. Resistor (100 kΩ)
7. Hexagonal wrench (M3 mm)
8. Standard tools

1-3 Test point and adjustment variable resistor positions

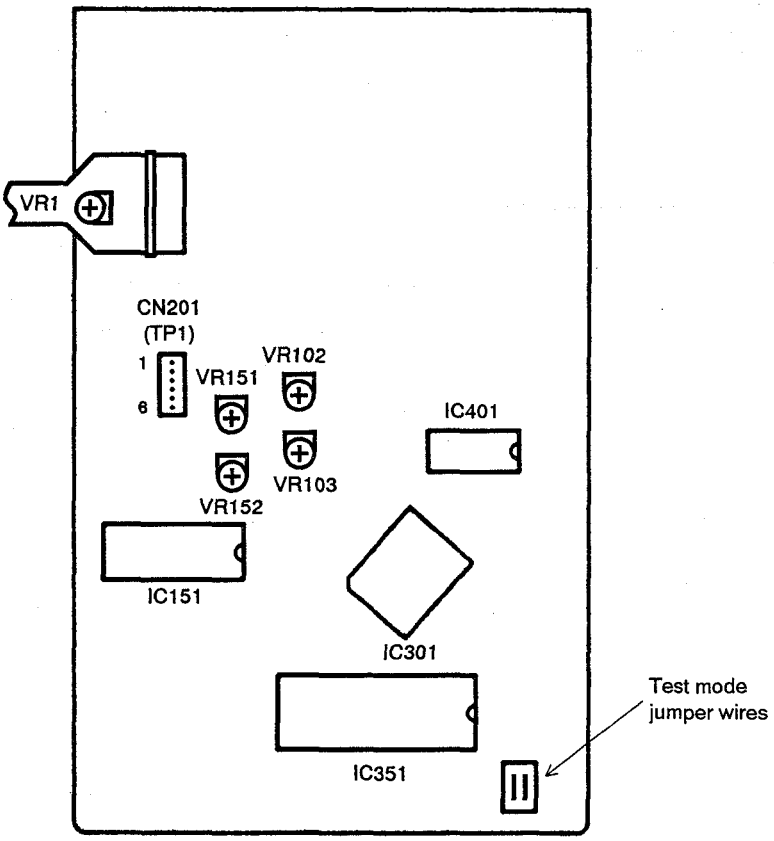


Figure 1 Adjustment Locations

1-4 Notes

1. Use a 10:1 probe for the oscilloscope.
2. All the knob positions (settings) for the oscilloscope in the adjustment procedures are for when a 10:1 probe is used.

1-5 Test mode

These models have a test mode so that the adjustments and checks required for service can be carried out easily. When these models are in test mode, the keys on the front panel work differently from normal. Adjustments and checks can be carried out by operating these keys with the correct procedure. For these models, all adjustments are carried out in test mode.

[Setting these models to test mode]

How to set this model into test mode.

1. Turn off the power switch.
2. Short the test mode jumper wires. (See Figure 1.)
3. Turn on the power switch.

When the test mode is set correctly, the display is different from what it usually is when the power is turned on. If the display is still the same as usual, test mode has not been set correctly, so repeat Steps 1-3.

[Release from test mode]

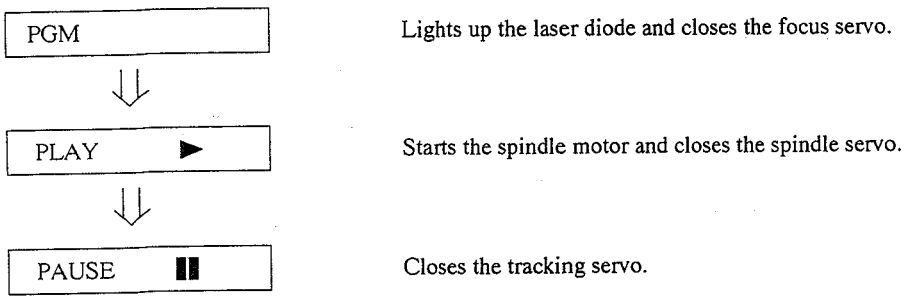
Here is the procedure for releasing the test mode:
1. Press the STOP key and stop all operations.
2. Turn off the power switch on the front panel.

[Operations of the keys in test mode]

Code	Key name	Function in test mode	Explanation
	PGM (PROGRAM)	Focus servo close	If Disc Tray 1 is closed, Disk Tray 1 is moved to the play position. Then the laser diode is lit up and the focus actuator is lowered, then raised slowly and the focus servo is closed at the point where the objective lens is focused on the disc. With the player in this state, if you lightly rotate the stopped disc by hand, you can hear the sound the focus servo. If you can hear this sound, the focus servo is operating correctly. If you press this key with no disc mounted, the laser diode lights up, the focus actuator is pulled down, then the actuator is raised and lowered twice and returned to its original position.
►	PLAY	Spindle servo ON	Starts the spindle motor in the clockwise direction and when the disc rotation reaches the prescribed speed (about 500 rpm at the inner periphery), sets the spindle servo in a closed loop. Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed. If the focus servo does not go correctly into a closed loop or the laser light shines on the mirror section at the outermost periphery of the disc, the same symptom is occurred.
▮▮	PAUSE	Tracking servo close/open	Pressing this key when the focus servo and spindle servo are operating correctly in closed loops puts the tracking servo into a closed loop, displays the track number being played back and the elapsed time on the front panel, and outputs the playback signal. If the elapsed time is not displayed or not counted correctly or the audio is not played back correctly, it may be that the laser is shining on the section with no sound recorded at the outer edge of the disc, that something is out of adjustment, or that there is some other problem. This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.
⏮/ ◄◄	TRACK/ MANUAL SEARCH REV	Carriage reverse (inwards)	Moves the pickup position toward the inner periphery of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the pickup does not automatically stop at the mechanical end point in test mode, be careful with this operation.
►►/ ⏭	TRACK/ MANUAL SEARCH FWD	Carriage forward (outwards)	Moves the pickup position toward the outer periphery of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the pickup does not automatically stop at the mechanical end point in test mode, be careful with this operation.
■	STOP	Stop	Switches off all the servos and initializes. The pickup remains where it was when this key was pressed.
▲	OPEN/CLOSE DISC 1	Disc tray open/close	Opens/closes the disc tray. This key is a toggle key and open/close tray alternately.

[How to play back a disc in test mode]

In test mode, since the servos operate independently, playing back a disc requires that you operate the keys in the correct order to close the servos.
Here is the key operation sequence for playing back a disc in test mode.



Lights up the laser diode and closes the focus servo.

Starts the spindle motor and closes the spindle servo.

Closes the tracking servo.

Wait at least 2-3 seconds between each of these operations.

1. Focus offset adjustment

● Objective ● Symptom when out of adjustment	Sets the DC offset for the focus error amp. The player does not focus in and the RF signal is dirty.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 6 (FCS ERR). [Settings] 5 mV/division 10 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, stopped (just the Power switch on) VR103 (FCS OFS) None needed

[Procedure]

Adjust VR103 (FCS OFS) so that the DC voltage at TP1, Pin 6 (FCS ERR) is –50 ± 50 mV.

2. Grating adjustment

● Objective	To align the tracking error generation laser beam spots to the optimum angle on the track		
● Symptom when out of adjustment	Play does not start, track search is impossible, tracks are skipped.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK ERR) via a low pass filter. (See Figure 2) [Settings] 50 mV/division 5 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, focus and spindle servos closed and tracking servo open Pickup grating adjustment slit 12 cm disc. (YEDS-7 can not be used.)

[Procedure]

1. Move the pickup to the outer edge of the disc with the TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| or |◀◀ / ◀◀ key so that the grating adjustment slit is at the outer edge of the disc where it can be adjusted.
2. Press the PGM key, then the PLAY ▶ key in that order to close the focus servo then the spindle servo.
3. Insert an ordinary screwdriver into the grating adjustment slit and adjust the grating to find the null point. For more details, see the next page.
4. If you slowly turn the screwdriver counterclockwise from the null point, the amplitude of the wave gradually increases, then if you continue turning the screwdriver, the amplitude of the wave becomes smaller again. Turn the screwdriver counterclockwise from the null point and set the grating to the first point where the wave amplitude reaches its maximum.

   Reference: Figure 3 shows the relation between the angle of the tracking beam with the track and the wave form.

   Note: The amplitude of the tracking error signal is about 3 Vp-p (when a 39 kΩ + 0.001 µF low pass filter is used). If this amplitude is extremely small (2 Vp-p or less), the objective lens may be dirty or the pickup malfunctioning. If the difference between the amplitude of the error signal at the innermost edge and outermost edge of the disc is more than 10%, the grating is not adjusted to the optimum point, so adjust it again.
5. Return the pickup to more or less midway across the disc with the TRACK/MANUAL SEARCH REV |◀◀ / ◀◀ key, press the PAUSE ▮▮ key and check that the track number and elapsed time are displayed on the front panel. If they are not displayed at this time or the elapsed time changes irregularly, check the null point and adjust the grating again.

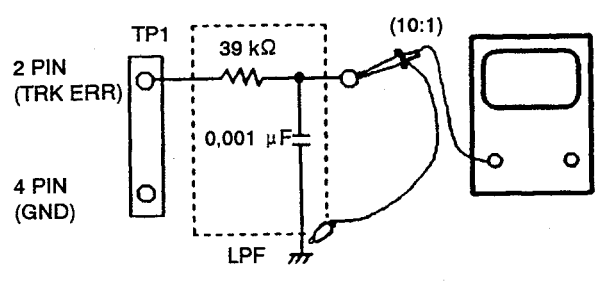
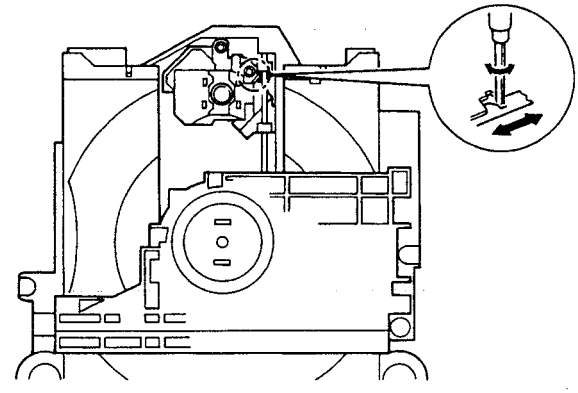


Figure 2



Adjustment Locations

[How to find the null point]

When you insert the regular screwdriver into the slit for the grating adjustment and change the grating angle, the amplitude of the tracking error signal at TP1 Pin 2 changes. Within the range for the grating, there are five or six locations where the amplitude of the wave reaches a minimum. Of these five or six locations, there is only one at which the envelope of the wave form is smooth. This location is where the three laser beams divided by the grating are all right above the same track. (See Figure 3.)
This point is called the null point. When adjusting the grating, this null point is found and used as the reference position.

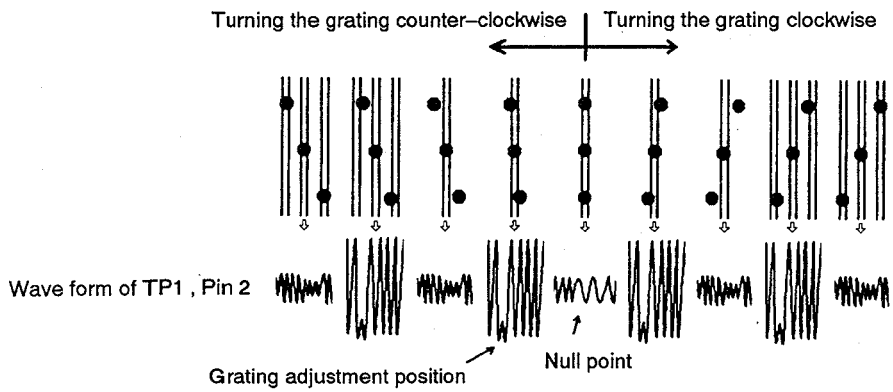
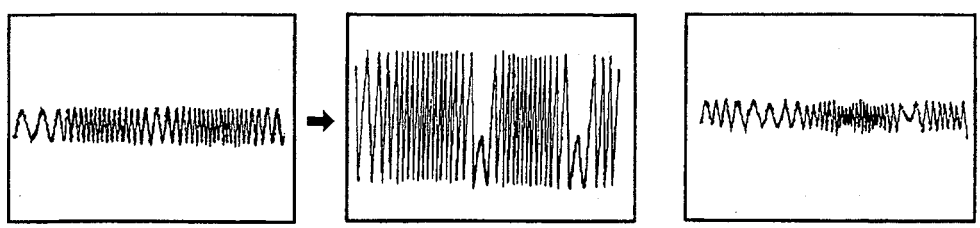


Figure 3



Nullo point waveform

Maximum amplitude waveform

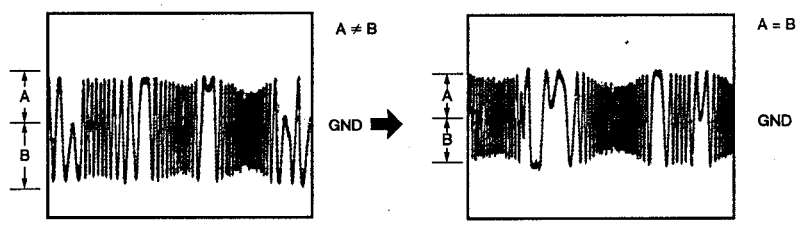
Waveform other than the null point

3. Tracking error balance adjustment

● Objective	To correct for the variation in the sensitivity of the tracking photodiode		
● Symptom when out of adjustment	Play does not start or track search is impossible		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK ERR). This connection may be via a low pass filter. [Settings] 50 mV/division 5 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, focus and spindle servos closed and tracking servo open VR102 (TRK BAL) YEDS-7

[Procedure]

1. Move the pickup to midway across the disc (R = 35 mm) with the TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| or |◀◀ / ◀◀ key.
2. Press the PGM key, then the PLAY ▶ key in that order to close the focus servo then the spindle servo.
3. Line up the bright line (ground) at the center of the oscilloscope screen and put the oscilloscope into DC mode.
4. Adjust VR102 (TRK BAL) so that positive amplitude and negative amplitude of the tracking error signal at TP1 Pin 2 (TRK ERR) are the same (in other words, so that there is no DC component).



When there is a DC component

When there is no DC component

4. Pickup radial/tangential tilt adjustment

● Objective	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down into the disc for the best read out of the RF signals.		
● Symptom when out of adjustment	Sound broken; some discs can be played but not others.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF). [Settings] 20 mV/division 200 ns/division AC mode	● Player state ● Adjustment location ● Disc	Test mode, play Pickup radial tilt adjustment screw and tangential tilt adjustment screw 12 cm disc. (YEDS-7 can not be used.)

[Procedure]

1. Move the pickup to the outer edge of the disc with the TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| or |◀◀ / ◀◀ key so that the radial/tangential tilt screws can be adjusted.
   Press the PGM key, the PLAY ▶ key, then the PAUSE ▮▮ key in that order to close the focus servo then the spindle servo and put the player into play mode.
2. First, adjust the radial tilt adjustment screw with an M3 mm hexagonal wrench so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly.
3. Next, adjust the tangential tilt adjustment screw with an M3 mm hexagonal wrench so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly (Figure 5).
4. Adjust the radial tilt adjustment screw and the tangential tilt adjustment screw again so that the eye pattern can be seen the most clearly. As necessary, adjust the two screws alternately so that the eye pattern can be seen the most clearly.

   Note: Radial and tangential mean the directions relative to the disc shown in Figure 4.

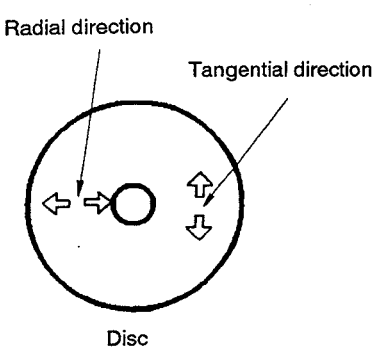
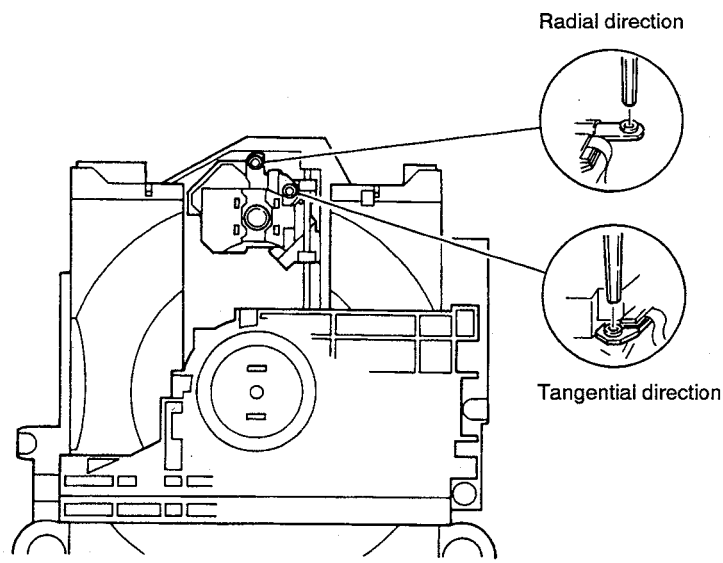


Figure 4



Adjustment Locations

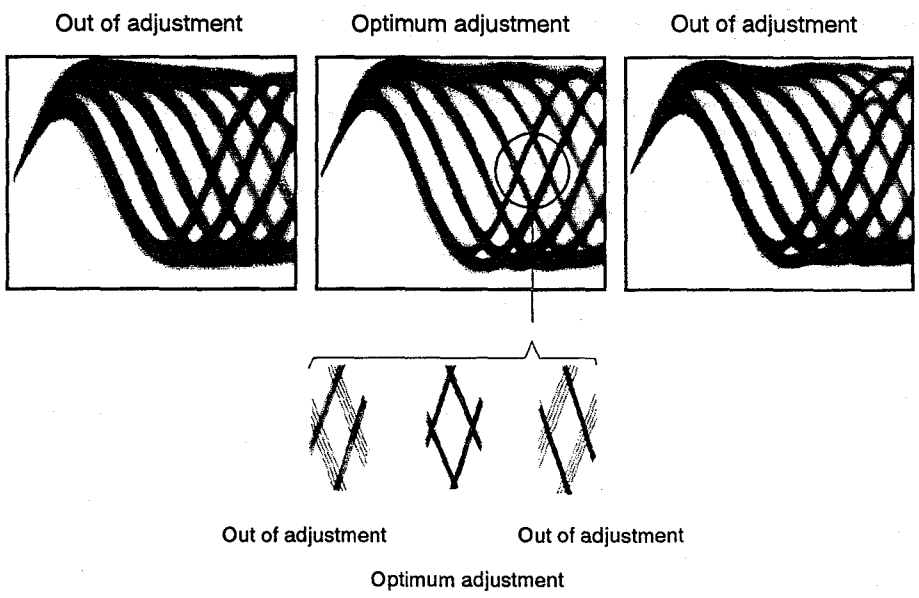


Figure 5 Eye Pattern

5. RF level adjustment

● Objective ● Symptom when out of adjustment	To optimize the playback RF signal amplitude No play or no search		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF). [Settings] 50 mV/division 10 ms/division AC mode	● Player state ● Adjustment location ● Disc	Test mode, play VR1 (laser power) YEDS-7

[Procedure]

1. Move the pickup to midway across the disc (R = 35 mm) with the TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| or |◀◀ / ◀◀ key, then press the PGM key, then the PLAY ▶ key in that order to close the respective servos and put the player into play mode.
2. Adjust VR1 (laser power) so that the RF signal amplitude is 1.2 Vp-p ± 0.1V.

6. Focus servo loop gain adjustment

● Objective ● Symptom when out of adjustment	To optimize the focus servo loop gain Playback does not start or focus actuator noisy		
● Measurement instrument connections	See Figure 6. [Settings] CH1 CH2 20 mV/division 5 mV/division X-Y mode	● Player state ● Adjustment location ● Disc	Test mode, play VR152 (FCS GAN) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 1 Vp-p.
2. Press the TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| or |◀◀ / ◀◀ key to move the pickup to halfway across the disc (R = 35 mm), then press the PGM key, the PLAY ▶ key, then the PAUSE ▮▮ key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR152 (FCS GAN) so that the Lissajous wave form is symmetrical about the X axis and the Y axis.

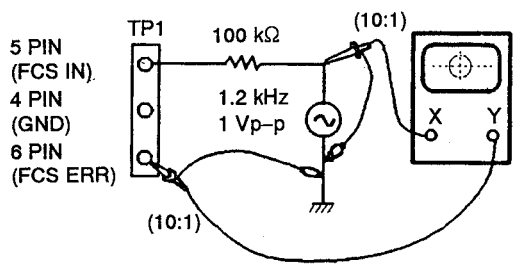
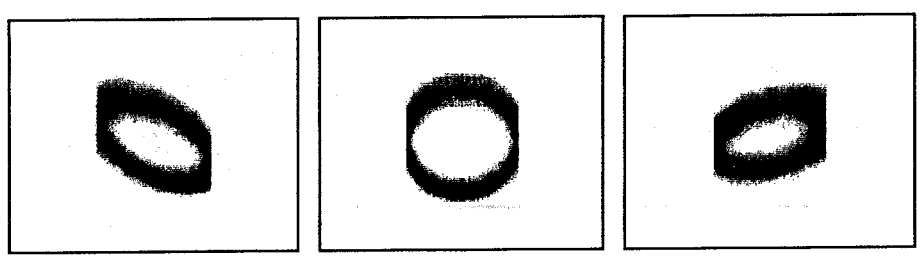


Figure 6

Focus Gain Adjustment



Higher gain | Optimum gain | Lower gain

7. Tracking servo loop gain adjustment

● Objective	To optimize the tracking servo loop gain		
● Symptom when out of adjustment	Playback does not start, during searches the actuator is noisy, or tracks are skipped.		
● Measurement instrument connections	See Figure 7. [Settings] CH1 CH2 50 mV/division 50 mV/division X-Y mode	● Player state ● Adjustment location ● Disc	Test mode, play VR151 (TRK GAN) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 2 Vp-p.
2. Press the TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| or |◀◀ / ◀◀ key to move the pickup to halfway across the disc (R = 35 mm), then press the PGM key, the PLAY ▶ key, then the PAUSE ▮▮ key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR151 (TRK GAN) so that the Lissajous wave form is symmetrical about the X axis and the Y axis.

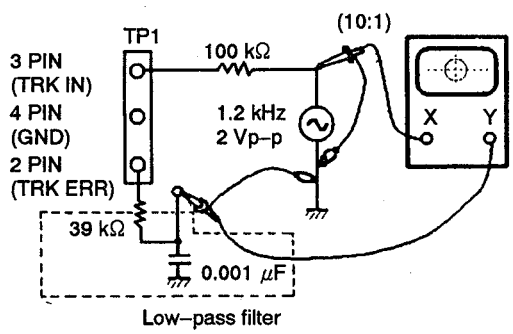
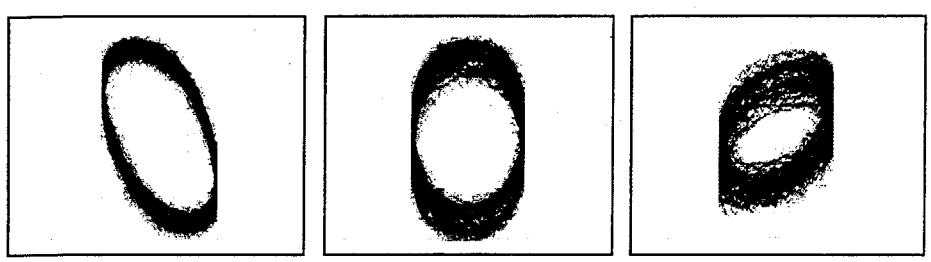


Figure 7

Tracking Gain Adjustment



Higher gain Optimum gain Lower gain

8. Focus error signal (focus S curve) verification

● Objective ● Symptom when out of adjustment	To judge whether the pickup is ok or not by observing the focus error signal. The pickup is judged from the amplitude of the tracking error signal (as discussed in the section on adjusting the tracking error balance) and the wave form for the focus error signal.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 6 (FCS ERR). [Settings] 100 mV/division 5 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, stop None YEDS-7

[Procedure]

1. Connect TP1 Pin 5 to ground.
2. Mount the disc.
3. While watching the oscilloscope screen, press the PGM key and observe the wave form in Figure 8 for a moment. Verify that the amplitude is at least 2.5 Vp-p and that the positive and negative amplitude are about equal. Since the wave form is only output for a moment when the PGM key is pressed, press this key over and over until you have checked the wave form.

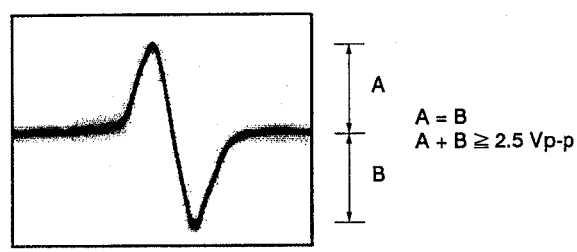


Figure 8

[Judging the pickup]

Do not judge the pickup until all the adjustments have been made correctly. In the following cases, there may be something wrong with the pickup.

1. The tracking error signal amplitude is extremely small (less than 2 Vp-p).
2. The focus error signal amplitude is extremely small (less than 2.5 Vp-p).
3. The positive and negative amplitudes of the focus error signal are extremely asymmetrical (2:1 ratio or more).
4. The RF signal is too small (less than 0.8 Vp-p) and even if VR1 is adjusted (laser power), the RF signal can not be brought up to the standard level.

8. RÉGLAGE

1. Méthodes de réglage

Si le lecteur CD est mal réglé, il risque de ne plus fonctionner normalement, voire ne plus fonctionner du tout, même si le capteur et la circuiterie en présentent aucune anomalie. Par conséquent, ajuster le lecteur correctement en suivant les démarches de réglage.

1-1 Points de réglage/Point et ordre de vérification

Etape	Point	Point d'essai	Emplacement du réglage
1	Réglage du décalage de la mise au point	TP1, Broche 6 (FCS. ERR)	VR103 (FCS. OFS)
2	Réglage du réseau de diffraction	TP1, Broche 2 (TRK. ERR)	Fente de réglage du réseau de diffraction
3	Réglage d'équilibrage d'erreur d'alignement	TP1, Broche 2 (TRK. ERR)	VR102 (TRK. BAL)
4	Réglage d'inclinaison radiale/tangentielle du capteur	TP1, Broche 1 (RF)	Vis de réglage d'inclinaison radiale, Vis de réglage d'inclinaison tangentielle
5	Réglage du niveau RF	TP1, Broche 1 (RF)	VR1 (niveau RF)
6	Réglage de gain de boucle asservie de la mise au point	TP1, Broche 5 (FCS. IN) TP1, Broche 6 (FCS. ERR)	VR152 (FCS. GAN)
7	Réglage de gain de boucle asservie de l'alignement	TP1, Broche 3 (TRK. IN) TP1, Broche 2 (TRK. ERR)	VR151 (TRK. GAN)
8	Vérification du signal d'erreur de la mise au point	TP1, Broche 6 (FCS. ERR)	———

● **Tableau des abbréviations**

FCS. ERR : erreur de mise au point
FCS. OFS : décalage de mise au point
TRK. ERR : erreur d'alignement
TRK. BAL : équilibrage d'erreur d'alignement
FCS. IN : mise au point correcte
TRK. IN : alignement correct

1-2 Intruments de mesure et outils

1. Oscilloscope cathodique à deux faisceaux (sonde 10:1)
2. Oscillateur de basse fréquence
3. Disque d'essai (YEDS-7)
4. Disque de 12 cm (avec au moins 70 minutes d'enregistrement)
5. Filtre passe-bas (39 kΩ + 0,001 μF)
6. Résistance (100 kΩ)
7. Clé hexagonale (M3 mm)
8. Outils conventionnels

1–3 Point d'essai et positions de réglage de la résistance variable

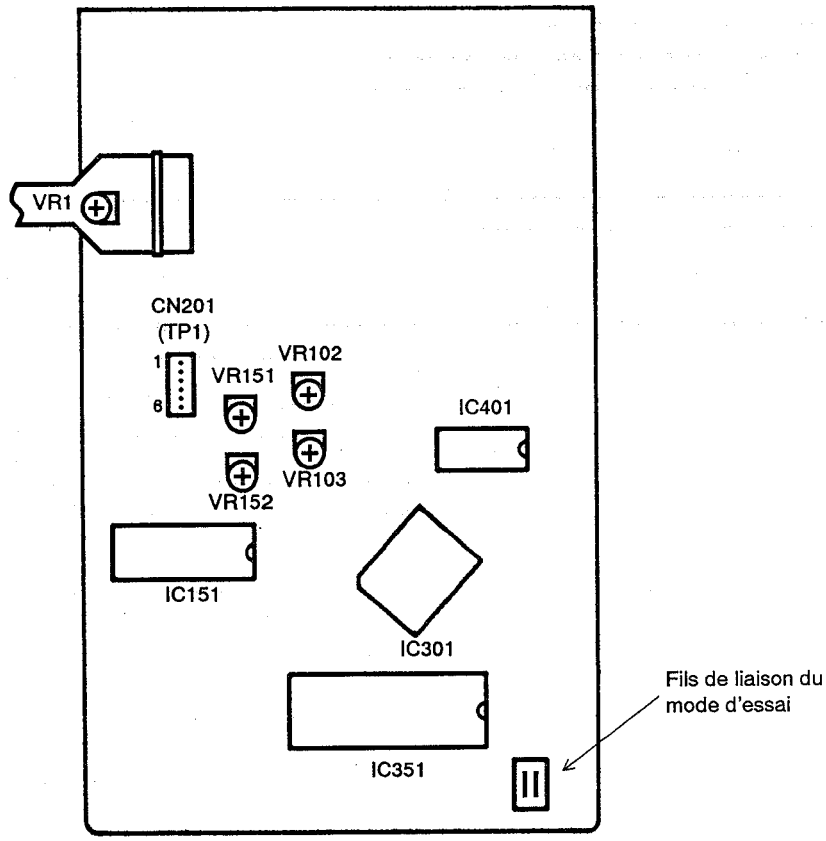


Figure 1 Emplacement des Réglages

1–4 Remarques

1. Utiliser une sonde 10:1 pour l'oscilloscope.
2. Toutes les positions (réglages) des boutons de l'oscilloscope, dans les démarches de réglage, sont conçues pour l'usage d'une sonde 10:1.

1–5 Mode d'essai

Ces modèles sont munis d'un mode d'essai, de façon que les réglages requis à la réparation puissent être effectués aisément. Quand ces modèles sont en mode d'essai, les touches du panneau avant ne fonctionnent pas comme à l'ordinaire. Les réglages et les vérifications peuvent s'effectuer par l'enclenchement de ces touches, à conditions de suivre les démarches requises. Dans le cas de ces modèles, tous les réglages sont réalisés en mode d'essai.

[Mise en mode d'essai]

Voici la manière de mettre le modèle en mode d'essai.
1. Commuter l'interrupteur d'alimentation sur arrêt.
2. Court-circuiter les fils de liaison du mode d'essai. (voir Figure 1.)
3. Commuter l'interrupteur d'alimentation sur marche.

Quand le mode d'essai est correctement réglé, l'affichage est différent de celui qui apparaît généralement à la mise sous tension. Si l'affichage reste le même, le mode d'essai n'a pas été réglé correctement. Dans ce cas, répéter les étapes 1 à 3.

[Pour sortir du mode d'essai]

Voici la procédure pour sortir du mode d'essai.

1. Appuyer sur la touche STOP pour arrêter toutes les opérations.
2. Sur le panneau avant, commuter l'interrupteur d'alimentation sur arrêt.

[Fonctionnement des touches en mode d'essai]

Code	Nom de la touche	Fonction en mode d'essai	Explications
	PGM (PROGRAMME)	Fermeture du circuit asservi de la mise au point	Si le plateau n ° 1 est fermé, il se place en mode de lecture. Ensuite la diode laser s'allume et l'actuateur de la mise au point s'abaisse, puis se relève lentement et le circuit servo de la mise au point se ferme au point où la lentille de l'objectif se focalise sur le disque. Quand l'appareil est dans cet état, si l'on fait légèrement tourner à la main le disque arrêté, le bruit produit par le circuit servo de la mise au point sera audible. Si ce bruit est perçu, le circuit servo de la mise au point fonctionne correctement. Si cette touche est enclenchée et qu'aucun disque n'est installé, la diode laser s'allume, l'actuateur de la mise au point s'abaisse, se relève, puis s'abaisse une deuxième fois et enfin, revient à sa position de départ.
►	PLAY	Asservissement de rotation en service	Démarre le moteur de rotation dans le sens des aiguilles d'une montre, quand la rotation du disque atteint la vitesse prescrite (environ 500 tours/min à la circonférence interne) et place le circuit servo de rotation dans une boucle fermée. Attention. Si cette touche est enfoncée et qu'un disque n'est pas installé, le moteur de rotation va tourner á la vitesse maximum. Si le circuit servo de la mise au point ne passe pas comme prévu dans une boucle fermée ou que la diode laser brille dans le miroir à la périphérie externe du disque, le même symptôme se produit.
▮▮	PAUSE	Ouverture/Fermeture du circuit servo de l'alignement	Le fait d'appuyer sur cette touche quand le circuit servo de la mise au point et de la rotation fonctionnent correctement en boucles fermées, place le circuit servo de l'alignement dans une boucle fermée, fait apparaître, sur le panneau avant, le numéro de la piste en cours de lecture et la durée écoulée, puis sort le signal de lecture. Si la durée écoulée n'est pas affichée ou n'est pas correctement calculée, ou si la reproduction sonore est anormale, il se peut que la diode laser s'active dans la section dépourvue de signaux enregistrés, au bord externe du disque, qu'un ajustement quelconque soit déréglé, ou qu'un autre problème se manifeste. Cette touche est de type à bascule et ouvre/ferme alternativement le circuit servo de l'alignement. Cette touche est inopérante si un disque n'est pas installé.
⏮/◄◄	TRACK/ MANUAL SEARCH REV	Inversion du chariot (vers l'intérieur)	Déplace le capteur vers la périphérie interne du disque. Quand cette touche est enclenchée et que le circuit servo de l'alignement travaille en boucle fermée, celui-ci change automatiquement dans une boucle ouverte. Comme le capteur ne s'arrête pas automatiquement au point de fin mécanique du mode d'essai, effectuer cette démarche avec précaution.
►►/⏭	TRACK/ MANUAL SEARCH FWD	Inversion du chariot (vers l'extérieur)	Déplace le capteur vers la périphérie externe du disque. Quand cette touche est enclenchée et que le circuit servo de l'alignement travaille en boucle fermée, celui-ci change automatiquement dans une boucle ouverte. Comme le capteur ne s'arrête pas automatiquement au point de fin mécanique du mode d'essai, effectuer cette démarche avec précaution.
■	STOP	Arrêt	Met tous les circuits servo hors service et les initialise. Le capteur reste là où il était quand cette touche a été enclenchée.
▲	OPEN/CLOSE DISC 1	Ouverture/Fermeture	Cette touche est de type à bascule et ouvre/ferme alternativement le plateau. Le fait d'enfoncer cette touche quand le plateau est ouvert le ferme et vice versa.

[Lecture de disque en mode d'essai]

En mode d'essai, comme les circuits servo fonctionnent de manière indépendante, la lecture d'un disque exige que les touches soient enclenchées dans l'ordre prescrit, afin de fermer les circuits servo.
Voici l'ordre d'enclenchement des touches pour reproduire un disque en mode d'essai.

PGM	Allume la diode laser et ferme le circuit servo de la mise au point.
⇓	
PLAY ▶	Démarre le moteur de rotation et ferme le circuit servo de la rotation.
⇓	
PAUSE ▮▮	Ferme le circuit servo de l'alignement.

Attendre 2 à 3 secondes entre chaque opération.

1. Réglage du décalage de la mise au point

● Objectif	Règle le décalage CC de l'amplificateur d'erreur de mise au point.		
● Symptôme quand déréglé	Le lecteur ne procède plus à la mise au point et le signal RF n'est pas clair.		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 6 (FCS ERR).	● Etat du lecteur	Mode d'essai, arrêté (juste l'interrupteur d'alimentation commuté sur marche)
	[Réglages] 5 mV/division 10 ms/division mode CC	● Emplacement du réglage	VR103 (FCS OFS)
		● Disque	Aucun requis

[Marche à suivre]

Ajuster VR103 (FCS OFS) de façon que la tension à TP1 broche 6 (FCS ERR) soit –50 ± 50 mV.

2. Réglage du réseau de diffraction

● Objectif	Pour aligner les points du rayon laser producteur d'erreur d'alignement sur l'angle optimum de la piste		
● Symptôme quand déréglé	La lecture ne commence pas, la recherche de piste est impossible, les pistes sont sautées.		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 2 (TRK ERR) via un filtre passe-bas. (Voir Figure 2) [Réglages] 50 mV/division 5 ms/division mode CC	● Etat du lecteur	Mode d'essai, circuits servo de la mise au point et de la rotation fermés, circuit servo de l'alignement ouvert
		● Emplacement du réglage	Fente de réglage du réseau de diffraction du capteur
		● Disque	Disque de 12 cm. (Il est impossible d'employer le disque YEDS-7).

[Marche à suivre]

1. Déplacer le capteur sur le bord externe du disque par la touche TRACK/ MANUAL SEARCH FWD ▶▶ / ▶▶| ou la touche |◀◀ / ◀◀, de façon que la fente de réglage du réseau de diffraction se situe sur bord extérieur du disque, où elle peut être réglée.
2. Appuyer sur la touche PGM, puis sur la touche PLAY ▶, dans cet ordre, pour fermer le circuit servo de la mise au point, puis celui de la rotation.
3. Insérer un tournevis ordinaire dans le réseau de diffraction pour trouver le point zéro. Pour plus de détails, voir page suivante.
4. Si l'on tourne lentement le tournevis dans le sens contraire des aiguilles d'une montre à partir du point zéro, l'amplitude de l'onde augmente graduellement et si l'on continue à tourner le tournevis, l'amplitude de l'onde diminue de nouveau. Tourner le tournevis dans le sens contraire des aiguilles d'une montre à partir du point zéro et régler le réseau de diffraction au premier point où l'amplitude de l'onde atteint son maximum.

   Référence: La Figure 3 illustre la relation entre l'angle du faisceau de l'alignement et la piste et la forme d'onde.

   Remarque: L'amplitude du signal d'erreur d'alignement se situe aux environs de 3 Vc-c (quand un filtre passe-bas de 39 kΩ + 0,001 µF est utilisé). Si cette amplitude est extrêmement petite (2 Vc-c ou moins), la lentille de l'objectif risque alors de s'encrasser ou le capteur risque de mal fonctionner. Si la différence entre l'amplitude du signal d'erreur au bord le plus intérieur et au bord le plus extérieur du disque est supérieure à 10%, ceci signifie que le réseau de diffraction n'est pas réglé à son point optimum. Dans ce cas, recommencer le réglage.
5. Replacer le capteur plus ou moins à mi-chemin sur le disque par la touche TRACK/ MANUAL SEARCH REV |◀◀ / ◀◀, appuyer sur la touche PAUSE ▮▮ et vérifier que le numéro de piste et la durée écoulée sont affichés sur le panneau avant. Si ces paramètres n'apparaissent pas ce moment, ou que la durée écoulée change de manière irrégulière, vérifier le point zéro et recommencer le réglage du réseau de diffraction.

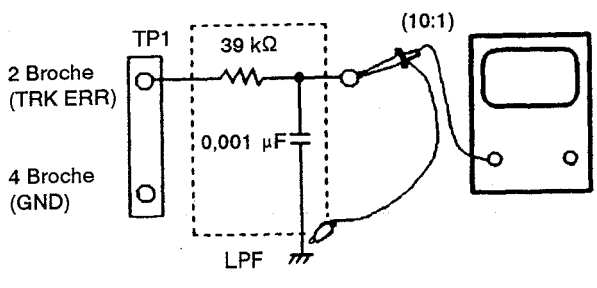
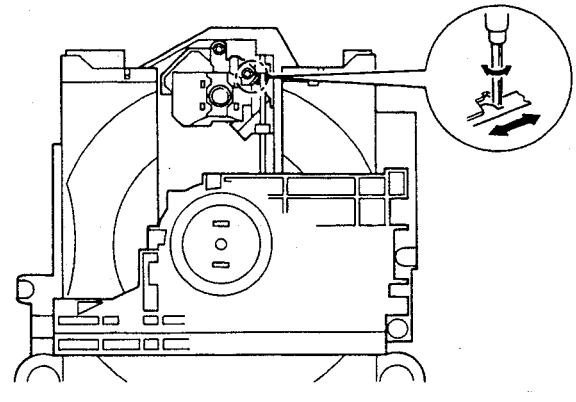


Figure 2



Emplacement des Réglages

[Repérage du point zéro]

Quand le tournevis est introduit dans la fente de réglage du réseau de diffraction et que l'angle du réseau de diffraction est modifié, l'amplitude du signal d'erreur d'alignement à TP1, broche 2, change. Dans les limites de la plage du réseau de diffraction, il existe six emplacements où l'amplitude de l'onde atteint le minimum. Mais l'enveloppe de la forme d'onde n'est régulière qu'à un seul de ces emplacements. Ce point se situe à l'endroit où les trois rayons laser, divisés par le réseau de diffraction, se situent exactement sur la même piste (voir Figure 3).
Ce point s'appelle le point zéro. Lors du réglage du réseau de diffraction, ce point zéro est repéré et utilisé comme position de référence.

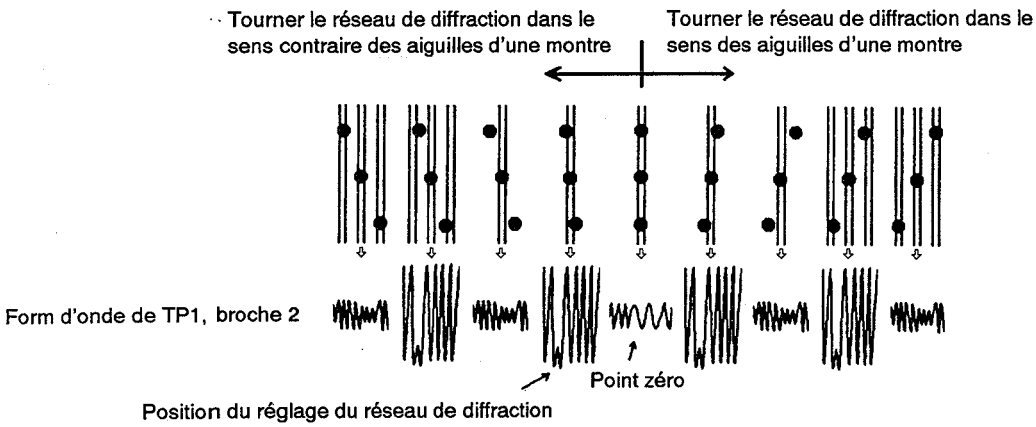
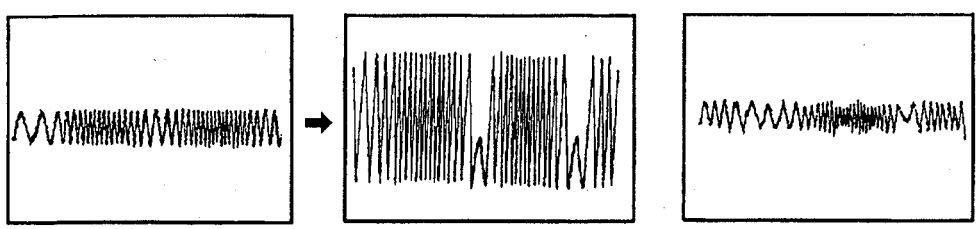


Figure 3



Forme d'onde du point zéro

Forme d'onde d'amplitude maximum

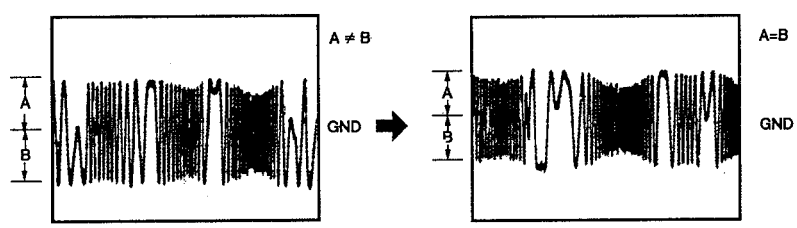
Forme d'onde autre que du point zéro

3. Réglage d'équilibrage d'erreur d'alignement

● Objectif	Pour corriger la variation de sensibilité de la photodiode d'alignement		
● Symptôme quand déréglé	La lecture ne commence pas, la recherche de piste est impossible.		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 2 (TRK ERR).	● Etat du lecteur	Mode d'essai, circuits servo de la mise au point et de la rotation fermés, circuit servo de l'alignement ouvert
	[Réglages] 50 mV/division 5 ms/division mode CC	● Emplacement du réglage	VR102 (TRK BAL)
		● Disque	YEDS-7

[Marche à suivre]

1. Déplacer le capteur à mi-chemin sur le disque (R = 35 mm) par la touche TRACK/ MANUAL SEARCH FWD ▶▶ / ▶▶| ou |◀◀ / ◀◀.
2. Appuyer sur la touche PGM, puis sur la touche PLAY ▶, dans cet ordre, pour fermer le circuit servo de la mise au point, puis celui de la rotation.
3. Aligner la ligne lumineuse (masse) au centre de l'écran de l'oscilloscope et placer celui-ci en mode CC.
4. Ajuster VR102 (TRK BAL) de façon que l'amplitude positive et l'amplitude négative du signal d'erreur d'alignement à TP1, broche 2 (TRK ERR) soient identiques (c'est-à-dire, qu'il n'y ait aucun composant CC).



S'il y a un composant CC　　S'il n'y a pas de composant CC

4. Réglage d'inclinaison radiale/tangentielle du capteur

● Objectif	Pour régler l'angle du capteur par rapport au disque, de façon que les rayons laser frappent verticalement le disque et permettre ainsi la lecture optimum des signaux RF.		
● Symptôme quand déréglé	Son interrompu; certains disques peuvent être lus et pas d'autres.		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 1 (RF). [Réglages] 20 mV/division 200 ns/division mode CA	● Etat du lecteur	Mode d'essai, lecture
		● Emplacement du réglage	Vis de réglage d'inclinaison radiale Vis de réglage d'inclinaison tangentielle
		● Disque	Disque de 12 cm. (Il est impossible d'employer le disque YEDS-7).

[Marche à suivre]

1. Déplacer le capteur sur le bord externe du disque par la touche TRACK/ MANUAL SEARCH FWD ▶▶/▶▶| ou |◀◀/◀◀, de façon que les vis de réglage d'inclinaison radiale et tangentielle puissent être réglées.

   Appuyer sur la touche PGM, PLAY ▶ et PAUSE ▮▮ dans cet ordre, afin de fermer le circuit servo de la mise au point, puis celui de la rotation et placer le lecteur en mode de lecture.

2. D'abord, ajuster la vis d'inclinaison radiale à l'aide d'une clé hexagonale M de 3 mm, de façon que le motif en oeil (c'est-à-dire, le diamant au centre du signal RF) soit le plus clairement visible.

3. Ensuite, ajuster la vis d'inclinaison tangentielle à l'aide d'une clé hexagonale M de 3 mm, de façon que le motif en oeil (c'est-à-dire, le diamant au centre du signal RF) soit le plus clairement visible (Figure 5).

4. Ajuster de nouvear la vis d'inclinaison radiale et la vis d'inclinaison tangentielle de façon que le motif en oeil soit le plus clairement visible. Le cas échéant, régler les deux vis de façon que le motif en oeil soit le plus clairement visible.

   Remarque: "Radial" et "tangentiel" se rapportent aux sens par rapport au disque illustré à la Figure 4.

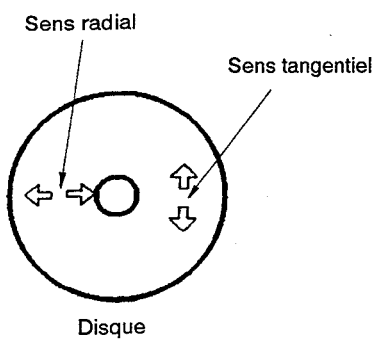
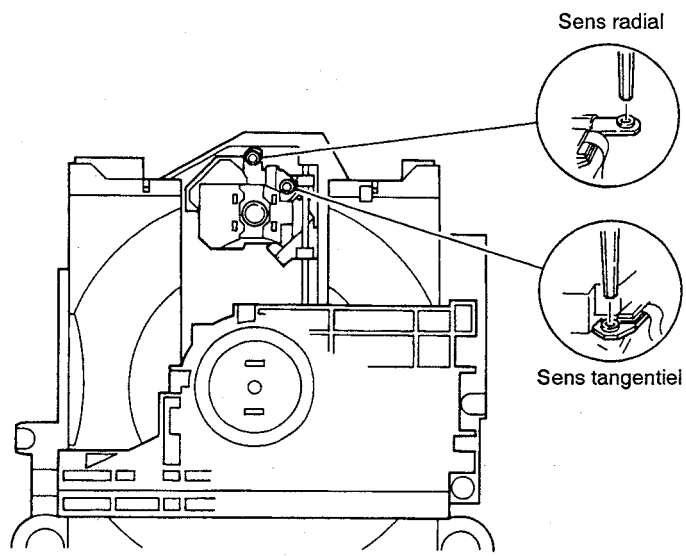


Figure 4



Emplacements des Réglages

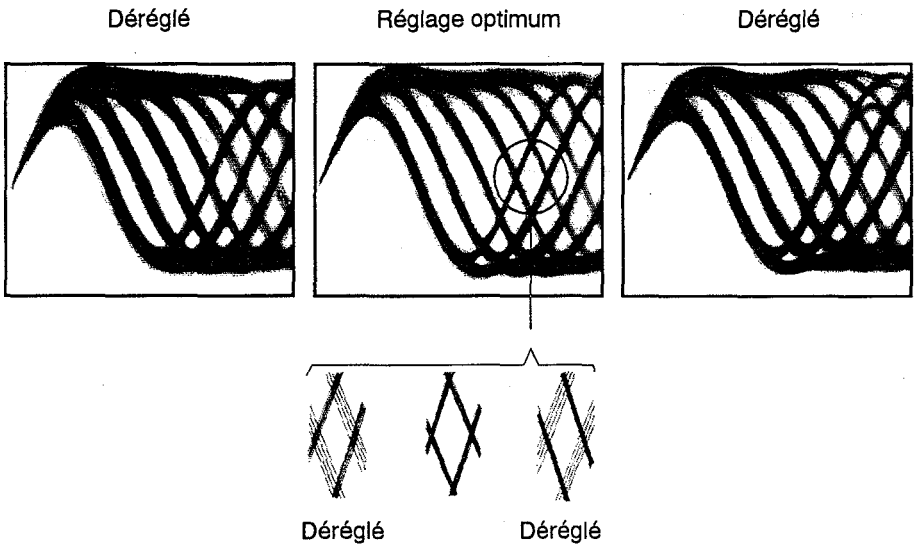


Figure 5 Motif en oeil

5. Réglage du niveau RF (niveau RF)

● Objectif	Pour optimaliser l'amplitude du signal RF de lecture		
● Symptôme quand déréglé	Pas de lecture ni de recherche		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 1 (RF)	● Etat du lecteur	Mode d'essai, lecture
	[Rélages] 50 mV/division 10 ms/division mode CA	● Emplacement du réglage	VR1 (alimentation du laser)
		● Disque	YEDS-7

[Marche à suivre]

1. Placer le capteur à mi-chemin sur le disque (R = 35 mm) à l'aide de la touche TRACK/ MANUAL SEARCH FWD ▶▶ / ▶▶| ou |◀◀ / ◀◀. Ensuite, appuyer sur la touche PGM puis sur la touche PLAY ▶, dans cet ordre, pour fermer les circuits servo respectifs et mettre le lecteur en mode de lecteur.
2. Ajuster VR1 (alimentation du laser) de façon que l'amplitude du signal RF atteigne 1,2 Vc-c ± 0,1V.

6. Réglage de gain de boucle asservie de la mise au point

● Objectif ● Symptôme quand déréglé	Pour optimaliser le gain de la boucle d'asservissement de la mise au point. La lecture ne commence pas ou l'actuateur de la mise au point est parasité.		
● Raccordement des instruments de mesure	Voir Figure 6 [Réglages] CAN. 1 CAN. 2 20 mV/division 5 mV/division Mode X-Y	● Etat du lecteur ● Emplacement du réglage ● Disque	Mode d'essai, lecture VR152 (FCS GAN) YEDS-7

[Marche à suivre]

1. Régler la sortie du générateur AF sur 1,2 kHz et 1 Vc-c.
2. Appuyer sur la touche TRACK/ MANUAL SEARCH FWD ▶▶ / ▶▶| ou la touche |◀◀ / ◀◀ pour placer le capteur à mi-chemin sur le disque (R = 35 mm). Ensuite, appuyer sur la touche PGM, la touche PLAY ▶, puis sur la touche PAUSE ❚❚, dans cet ordre, pour fermer les circuits servo respectifs et placer le lecteur en mode de lecture.
3. Ajuster VR152 (FSC GAN) de façon que la forme d'onde de Lissajous soit symétrique aux alentours de l'axe X et l'axe Y.

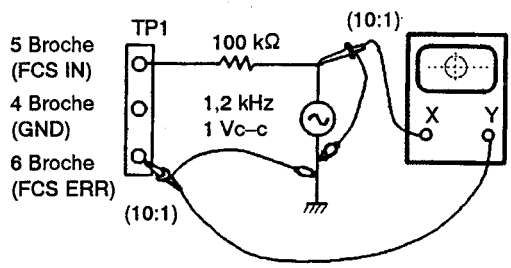
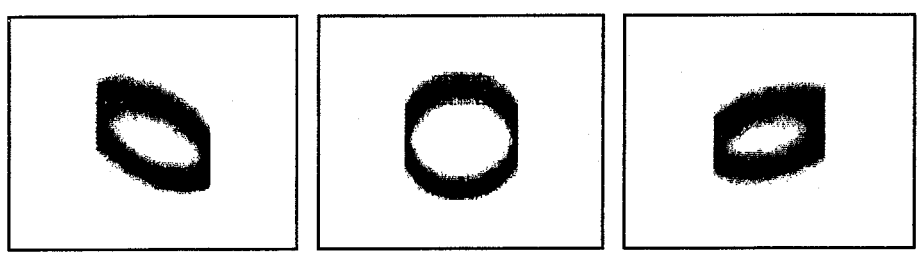


Figure 6

Adjustment de gain de mise au point



Gain supérieur | Gain optimum | Gain inférieur

7. Réglage de gain de boucle asservie de l'alignement

● Objectif	Pour optimaliser le gain de la boucle d'asservissement de l'alignement.		
● Symptôme quand déréglé	La lecture ne commence pas, l'actuateur est parasité pendant la recherche, ou des pistes sont sautées.		
● Raccordement des instruments de mesure	Voir Figure 7 [Réglages] CAN. 1 CAN. 2 50 mV/division 50 mV/division Mode X-Y	● Etat du lecteur ● Emplacement du réglage ● Disque	Mode d'essai, lecture VR151 (TRK GAN) YEDS-7

[Marche à suivre]

1. Régler la sortie du générateur AF sur 1,2 kHz et 1 Vc-c.
2. Appuyer sur la touche TRACK/ MANUAL SEARCH FWD ▶▶ / ▶▶| ou la touche |◀◀ / ◀◀ pour placer le capteur à mi-chemin sur le disque (R = 35 mm). Ensuite, appuyer sur la touche PGM, la touche PLAY ▶, puis sur la touche PAUSE ❚❚, dans cet ordre, pour fermer les circuits servo respectifs et placer le lecteur en mode de lecture.
3. Ajuster VR151 (TRK GAN) de façon que la forme d'onde de Lissajous soit symétrique aux alentours de l'axe X et l'axe Y.

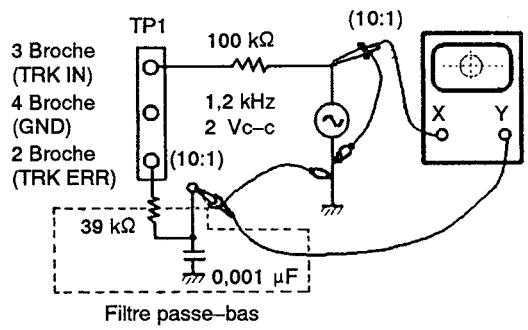
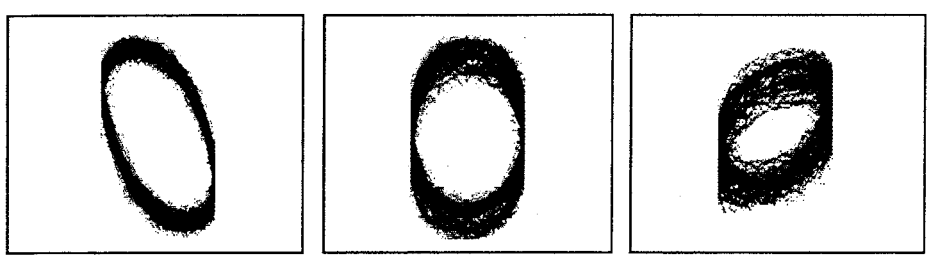


Figure 7

Adjustment de gain d'alignement



Gain supérieur | Gain optimum | Gain inférieur

8. Vérification du signal d'erreur de la mise au point

● Objectif ● Symptôme quand déréglé	Pour juger si le capteur est bon ou pas, en observant le signal d'erreur de la mise au point. L'état du capteur s'évalue à partir de l'amplitude du signal d'erreur d'alignement (comme décrit dans le paragraphe relatif à l'équilibrage d'erreur d'alignement), ainsi qu'à partir de la forme d'onde du signal d'erreur de mise au point.		
● Raccordement des instruments de mesure	Raccorder l'oscilloscope à TP1, broche 6 (FCS ERR). [Réglages] 100 mV/division 5 ms/division mode CC	● Etat du lecteur ● Emplacement du réglage ● Disque	Mode de test, arrêt Aucun YEDS-7

[Marche à suivre]

1. Raccorder TP1, broche 5 à la masse.
2. Installer le disque.
3. Tout en regardant l'écran de l'oscilloscope, appuyer sur la touche PGM et observer la forme d'onde de la Figure 8, pendant quelques instants.Vérifier que l'amplitude atteint au moins 2,5 Vc-c et que les amplitudes positive et négatives soient égales. Comme la forme ne sort que pour un moment, quand la touche PGM est enclenchée, appuyer sur à plusieurs reprises sur cette touche, jusqu'à ce que la forme d'onde ait été vérifiée.

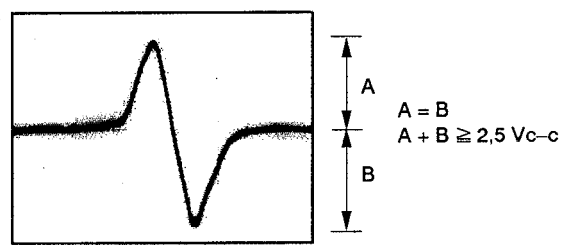


Figure 8

[Evaluation du capteur]

Ne pas tenter d'évaluer l'état du capteur tant que tous les réglages ne sont pas corrects. Les cas suivants témoignent de l'anomalie du capteur.

1. L'amplitude du signal d'erreur d'alignement est extrêmement petite (inférieure à 2 Vc-c).
2. L'amplitude du signal d'erreur de mise au point est extrêmement petite (inférieure à 2,5 Vc-c).
3. Les amplitudes positive et négative du signal d'erreur de mise au point sont extrêmement asymétriques (taux 2:1 ou plus).
4. Le signal RF est trop petit (inférieur à 0,8 Vc-c) et même si VR1 (alimentation du laser) est ajustée, le signal RF ne peut être élevé au niveau standard.

8. AJUSTE

1. Métodos de ajuste

Si un reproductor de discos compactos se ajusta incorrecta o inadecuadamente, puede funcionar mal o no trabajar incluso aunque no exista ningún problema en el captor ni en los circuitos. Ajuste correctamente siguiendo el procedimiento de ajuste.

1-1 Ítemes de ajuste/verificación y orden

Paso	Ítem	Punto de prueba	Lugar de ajuste
1	Ajuste del descentramiento de enfoque	TP1, Patilla 6 (FCS. ERR)	VR103 (FCS. OFS)
2	Ajuste de retícula	TP1, Patilla 2 (TRK. ERR)	Ranura de ajuste de retícula
3	Ajuste del equilibrio de ajuste de seguimiento	TP1, Patilla 2 (TRK. ERR)	VR102 (TRK. BAL)
4	Ajuste de la inclinación en sentido radial/tangencial del captor	TP1, Patilla 1 (RF)	Tornillo de ajuste de la inclinación radial Tornillo de ajuste de la inclinación tangencial
5	Ajuste del nivel de RF	TP1, Patilla 1 (RF)	VR1 (Nivel de RF)
6	Ajuste de la ganancia del bucle del servo de enfoque	TP1, Patilla 5 (FCS. IN) TP1, Patilla 6 (FCS. ERR)	VR152 (FCS. GAN)
7	Ajuste de la ganancia del bucle del servo de seguimiento	TP1, Patilla 3 (TRK. IN)) TP1, Patilla 2 (TRK. ERR)	VR151 (TRK. GAN)
8	Verificación de la señal de error de enfoque	TP1, Patilla 6 (FCS. ERR)	———

● **Tabla de abreviaturas**

FCS. ERR : Error de enfoque
FCS. OFS : Descentramiento de enfoque
TRK. ERR : Error de seguimiento
TRK. BAL : Equilibrio de seguimiento
FCS. IN : Entrada de enfoque
TRK. IN : Entrada de seguimiento

1-2 Instrumentos y herramientas de medición

1. Osciloscopio de doble traza (Sonda de 10:1)
2. Oscilador de baja frecuencia
3. Disco de prueba (YEDS-7)
4. Disco de 12 cm (con 70 minutos de grabación por lo menos)
   Para el tipo de reproducción múltiple de disco compacto, emplee solamente el disco de prueba YEDS-7.
5. Filtro de paso bajo (39 kΩ + 0,001 μF)
6. Resistor (100 kΩ)
7. Llave hexagonal (M3 mm)
8. Herramientas estándar

1-3 Ubicación de los puntos de prueba y los resistores variables de ajuste

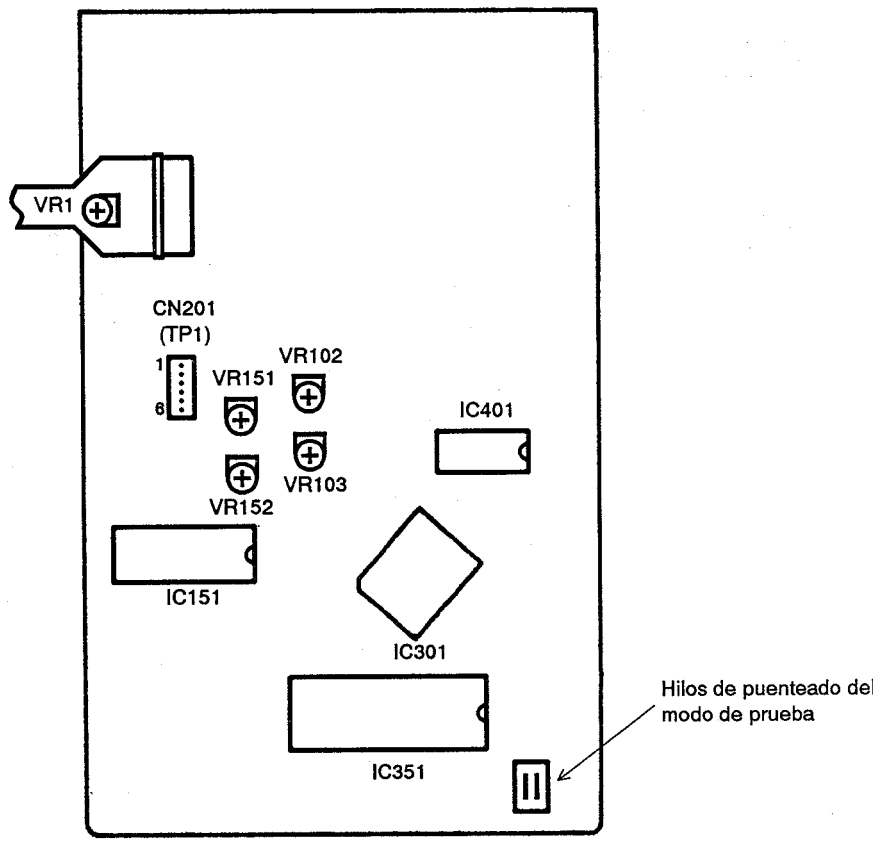


Figura 1 Lugares de Ajuste

1-4 Notas

1. Emplee una sonda de 10:1 para el osciloscopio.
2. Todas las posiciones de los mandos (ajustes) para el osciloscopio de los procedimientos de ajuste son para cuando se emplee la sonda de 10:1.

1-5 Modo de prueba

Estos modelos poseen un modo de prueba que permite realizar fácilmente los ajustes y las comprobaciones requeridos para el servicio. Cuando estos modelos estén en el modo de prueba, las teclas del panel frontal trabajarán de forma diferente a la normal. Los ajustes y las comprobaciones podrán realizarse accionando estas teclas de acuerdo con el procedimiento correcto. Para estos modelos, todos los ajustes se realizarán en el modo de prueba.

[Puesta de estos modelos en el modo de prueba]

A continuación se indica cómo poner estos modelos en el modo de prueba.
1. Ponga en OFF el interruptor de alimentación.
2. Cortocircuite los hilos de puenteado de modo de prueba. (Consulte la figura 1.)
3. Ponga en ON el interruptor de alimentación.

Cuando haya ajustado correctamente el modo de prueba, la visualización será diferente a la obtenida normalmente al conectar la alimentación. Si la visualización sigue siendo la normal, el modo de prueba no se habrá ajustado normalmente, por lo que tendrá que repetir los pasos 1 a 3.

[Desactivación del modo de prueba]

A continuación se indica el procedimiento para desactivar el modo de prueba.
1. Presione la tecla STOP y cese todas las operaciones.
2. Ponga en OFF el interruptor de alimentación del panel frontal.

[Operaciones de teclas en el modo de prueba]

Código	Nombre de la tecla	Función en el modo de prueba	Explicación
	PGM (PROGRAMA)	Cierre del servo de enfoque	Si la bandeja de disco 1 está cerrada, ésta se moverá hasta la posición de reproducción. Después el diodo láser se encenderá y el actuador de enfoque descenderá, después se elevará lentamente, y el servo de enfoque se cerrará en el punto en el que el objetivo se enfoque sobre el disco. Con el reproductor en este estado, si gira ligeramente con la mano el disco parado podrá oír el sonido del servo de enfoque. Si puede oír este sonido, el servo de enfoque estará funcionando correctamente. Si presiona esta tecla sin disco montado, el diodo láser se encenderá, el actuador de enfoque se verá empujado hacia abajo, y después se levantará y descenderá dos veces, y volverá a su posición original.
►	PLAY	Activación del servo del eje	Pondrá en marcha el motor del eje haciéndolo girar hacia la derecha y después la rotación del disco alcanzará la velocidad prescrita (unas 500 rpm en la periferia interior), y pondrá el servo del eje en un bucle cerrado. Tenga cuidado. Si presiona esta tecla cuando no haya disco montado, el motor del eje girará a la velocidad máxima. Si el servo de enfoque no pasa correctamente a un bucle cerrado, o si el haz lasérico incide en la sección del espejo en el la periferia del disco, ocurrirá el mismo síntoma.
❚❚	PAUSE	Apertura/cierre del servo de seguimiento	Si presiona esta tecla cuando el servo de enfoque y el servo del eje están funcionando correctamente en bucles cerrados, el servo de sequimiento se pondrá en bucle cerrado, en el panel frontal se visualizarán el número de canción que esté reproduciéndose y el tiempo transcurrido, y se producirá la salida de la señal de reproducción. Si el tiempo transcurrido no se visualiza o no se cuenta correctamente, o si el sonido no se reproduce correctamente, es posible que el rayo lasérico esté incidiendo en la sección sin sonido grabado en el borde exterior del disco, o que exista algún otro problema. Esta tecla es basculante (de acción alternativa) y abre/cierra el servo de seguimiento alternativamente. Esta tecla no funcionará cuando no haya disco montado.
⏮/ ◄◄	TRACK/ MANUAL SEARCH REV	Retroceso del carro (hacia adentro)	Moverá la posición del captor hacia el diámetro interior del disco. Si presiona esta tecla con el servo de seguimiento en bucle cerrado, dicho bucle pasará automáticamente a bucle abierto. Como el captor no se para automáticamente en el punto final mecánico en el modo de prueba, tenga cuidado cuando realice esta operación.
►►/ ⏭	TRACK/ MANUAL SEARCH FWD	Avance del carro (hacia afuera)	Moverá la posición del captor hacia la periferia del disco. Si presiona esta tecla con el servo de seguimiento en bucle cerrado, dicho bucle pasará automáticamente a bucle abierto. Como el captor no se para automáticamente en el punto final mecánico en el modo de prueba, tenga cuidado cuando realice esta operación.
■	STOP	Parada	Desactivará todos los servos e inicializará la unidad. El captor permanecerá donde estaba cuando se presionó esta tecla.
▲	OPEN/CLOSE DISC1	Apertura/cierre de la bandeja del disco	Abrirá/cerrará la bandeja del disco. Esta tecla es basculante (de acción alternativa) y abre/cierra la bandeja alternativamente.

[Cómo reproducir un disco en el modo de prueba]

En el modo de prueba, como los servos funcionan independientemente, la reproducción de un disco requiere el que usted emplee las teclas en el orden correcto para cerrar los servos.
A continuación se indica la secuencia de operación de teclas para reproducir un disco en el modo de prueba.

PGM	Hará que se encienda el diodo láser y cerrará el servo de enfoque.
⇓	
PLAY ▶	Pondrá en marcha el motor del eje y hará que se cierre el servo del eje.
⇓	
PAUSE ▮▮	Cerrará el servo de seguimiento.

Espere de 2 a 3 segundos por lo menos entre cada una de estas operaciones.

1. Ajuste del descentramiento del enfoque

● Objetivo ● Síntomas en caso de desajuste	Ajuste de la tensión de CC para el amplificador de error de enfoque. El reproductor no enfoca y la señal de RF contiene perturbaciones.		
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 6, (FCS ERR). [Ajustes] 5 mV/división 10 ms/división modo de CC	● Estado del reproductor ● Lugar de ajuste ● Disco	Modo de prueba, parado (con el interruptor de alimentación en ON) VR103 (FCS OFS) No es necesario

[Procedimiento]

Ajuste VR103 (FCS OFS) de forma que la tensión de CC de TP1, patilla 6, (FCS ERR) sea de –50 ± 50 mV.

2. Ajuste de retícula

● Objetivo	Alineación de los puntos del haz lasérico de generación de error de seguimiento al ángulo óptimo en la pista		
● Síntomas en caso de desajuste	La reproducción no se inicia, la búsqueda de canciones es imposible, las pistas se saltan.		
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 2, (TRK ERR) a través de un filtro de paso bajo. (Consulte la figura 2) [Ajustes] 50 mV/división 5 ms/división modo de CC	● Estado del reproductor ● Lugar de ajuste ● Disco	Modo de prueba, servos de enfoque y del eje cerrados, y servo de seguimiento abierto Ranura de ajuste de retícula del captor Disco de 12 cm. (El disco YEDS-7 no podrá emplearse.)

[Procedimiento]

1. Mueva el captor hasta el borde exterior del disco con la tecla TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| o |◀◀ / ◀◀ de forma que la ranura de ajuste de la retícula quede en el borde exterior del disco, donde puede ajustarse.
2. Presione la tecla PGM, y después la tecla PLAY ▶, por este orden, a fin de cerrar el servo de enfoque y después el servo del eje.
3. Inserte un destornillador normal en la ranura de ajuste de la retícula y ajuste la retícula hasta encontrar el punto nulo.
   Para más detalles, consulte la página siguiente.
4. Si gira lentamente el destornillador hacia la izquierda desde el punto nulo, la amplitud de la onda aumentará gradualmente. Después, si continúa girando el destornillador, la amplitud de la onda se volverá otra vez más pequeña. Gire el destornillador hacia la izquierda desde el punto nulo y ajuste la retícula al primer punto en el que la amplitud de la onda alcance su valor máximo.

   Referencia: En la figura 3 se muestra la relación entre el ángulo del haz de seguimiento con la pista y la forma de onda.

   Nota: La amplitud de la señal de error de seguimiento será de aproximadamente 3 Vp-p (cuando se emplee un filtro de paso bajo de 39 kΩ , 0,001 µF). Si esta amplitud es extremadamente pequeña (2 Vp-p o menos), es posible que el objetivo esté sucio o que el captor esté funcionando mal. Si la diferencia entre la amplitud de la señal de error en el borde interior y exterior del disco es superior al 10%, la retícula no estará ajustada al punto óptimo, por lo que tendrá que volver a ajustarla.
5. Devuelva el captor hasta la mitad más o menos del disco con la tecla TRACK/MANUAL SEARCH REV |◀◀ / ◀◀, presione la tecla PAUSE ▮▮, y vuelva a comprobar si en el panel frontal se visualizan el número de canción y el tiempo transcurrido. Si no se visualizan esta vez, o si el tiempo transcurrido cambia irregularmente, vuelva a comprobar el punto nulo y ajuste otra vez la retícula.

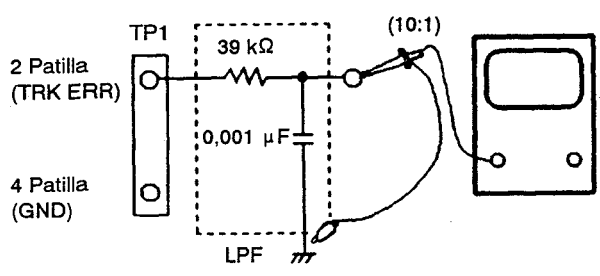
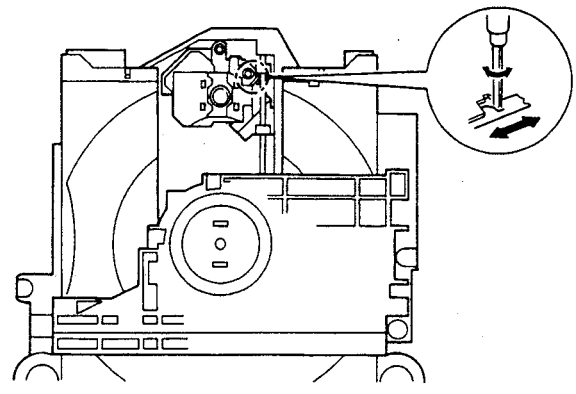


Figura 2



Lugares de Ajuste

[Cómo encontrar el punto nulo]

Cuando inserte el destornillador normal en la ranura para el ajuste de la retícula y cambie el ángulo de la misma. La amplitud de la señal de error de seguimiento de TP1, patilla 2, cambiará. Dentro del margen para la retícula existen cinco o seis lugares en los que la amplitud alcanza el valor mínimo. De estos cinco o seis lugares, solamente hay uno en el que la envolvente de la forma de onda es uniforme. Este lugar es donde los tres haces lasércos divididos por la retícula se encuentran exactamente sobre la misma pista. (Consulte la figura 3.) Este punto se denomina punto nulo. Cuando ajuste la retícula, este punto se encontrará y empleará como posición de referencia.

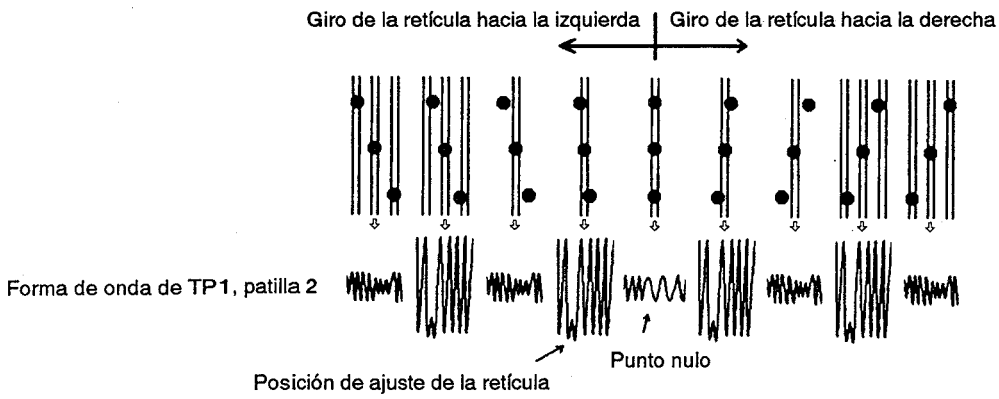
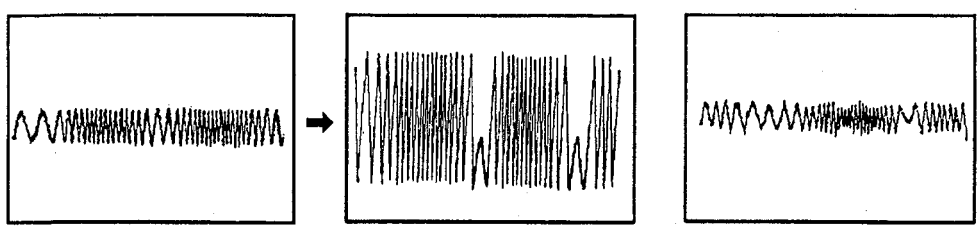


Figura 3



Forma de onda del punto nulo

Forma de onda de amplitud máxima

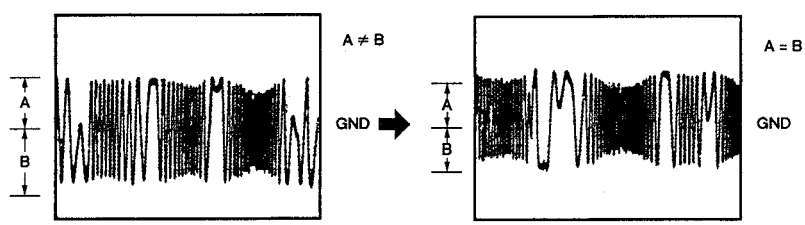
Forma de onda que no es el punto nulo

3. Ajuste del equilibrio de error de seguimiento

● Objetivo	Corrección de la variación de la sensibilidad del fotodiodo de seguimiento		
● Síntomas en caso de desajuste	La reproducción no se inicia o la búsqueda de canciones es imposible.		
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 2, (TRK ERR). Esta conexión puede realizarse a través de un filtro de paso bajo. [Ajustes] 50 mV/división 5 ms/división modo de CC	● Estado del reproductor ● Lugar de ajuste ● Disco	Modo de prueba, servos de enfoque y del eje cerrados, y servo de seguimiento abierto VR102 (TRK BAL) YEDS-7

[Procedimiento]

1. Mueva el captor hasta la mitad del disco (R = 35 mm) con la tecla TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| o |◀◀ / ◀◀.
2. Presione la tecla PGM, y después la tecla PLAY ▶, por este orden, a fin de cerrar el servo de enfoque y después el servo del eje.
3. Haga coincidir la línea brillante (masa) del centro de la pantalla del osciloscopio y ponga éste en el modo de CC.
4. Ajuste VR102 (TRK BAL) de forma que la amplitud positiva y la negativa de la señal de error de seguimiento de TP1, patilla 2, (TRK ERR) sean iguales (en otras palabras, de forma que no haya componente de CC).



Cuando hay componente de CC

Cuando no hay componente de CC

4. Ajuste de la inclinación en sentido radial/tangencial del captor

● Objetivo	Ajustar el ángulo del captor en relación con el disco de forma que los haces lasércos incidan perpendicularmente sobre el mismo a fin de poder leer con la mayor exactitud las señales de RF.		
● Síntomas en caso de desajuste	Sonido quebrado, algunos discos pueden reproducirse pero otros no.		
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 1, (RF). [Ajustes] 20 mV/división 200 ns/división modo de CA	● Estado del reproductor ● Lugar de ajuste ● Disco	Modo de prueba, reproducción Tornillo de ajuste de la inclinación radial y tornillo de ajuste de la inclinación tangencial Disco de 12 cm. (El disco YEDS-7 no podrá emplearse.)

[Procedimiento]

1. Mueva el captor hasta el borde exterior del disco con la tecla TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| o |◀◀ / ◀◀ de forma que puedan ajustarse los tornillos de inclinación radial/tangencial.
   Presione la tecla PGM, la tecla PLAY ▶, y después la tecla PAUSE ❚❚, por este orden, a fin de cerrar el servo de enfoque, después el servo del eje, y por último para poner el reproductor en el modo de reproducción.
2. En primer lugar, gire el tornillo de ajuste de inclinación radial con una llave hexagonal M 3 mm hasta que el patrón ocular (la forma de diamante del centro de la señal de RF) pueda verse con la mayor claridad.
3. A continuación, ajuste el tornillo de ajuste de inclinación tangencial con una llave hexagonal M 3 mm hasta que el patrón ocular (la forma de diamante del centro de la señal de RF) pueda verse con la mayor claridad (figura 5).
4. Vuelva a girar el tornillo de ajuste de inclinación radial y el tornillo de inclinación tangencial hasta que el patrón ocular pueda verse con la mayor claridad. Si es necesario, ajuste alternativamente los dos tornillos hasta que el patrón ocular pueda verse con la mayor claridad.

Nota: Radial y tangencial significan las direcciones en relación con el disco mostrado en la figura 4.

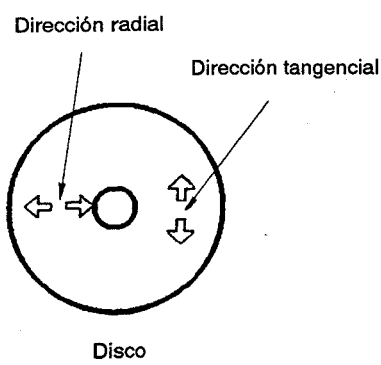
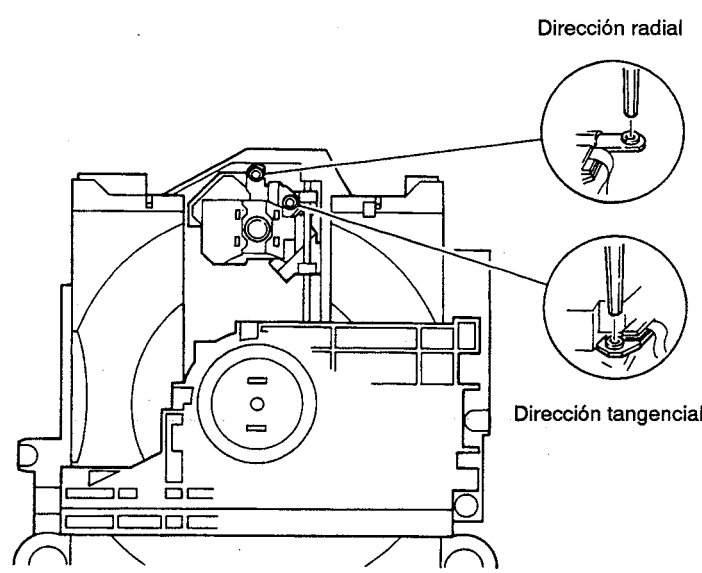


Figura 4



Lugares de Ajuste

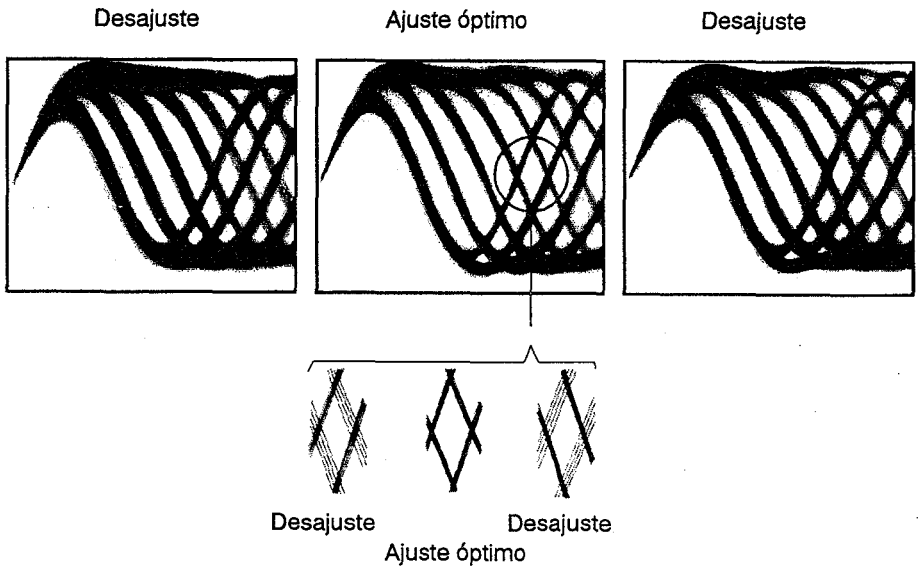


Figura 5 Patron Optico

5. Ajuste del nivel de RF

● Objetivo	Optimización de la amplitud de la señal de RF de reproducción		
● Síntomas en caso de desajuste	La reproducción no se inicia o la búsqueda de canciones es imposible.		
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 1, (RF). [Ajustes] 50 mV/división 10 ms/división modo de CA	● Estado del reproductor ● Lugar de ajuste ● Disco	Modo de prueba, reproducción VR1 (potencia de láser) YEDS-7

[Procedimiento]

1. Mueva el captor hasta la mitad del disco (R = 35 mm) con la tecla TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| o |◀◀ / ◀◀, presione la tecla PGM, depués la tecla PLAY ▶, por este orden a fin de cerrar los servos respectivos, y ponga el reproductor en el mode de reproducción.
2. Ajuste VR1 (potencia de láser) de forma que la amplitud de la señal de RF sea de 1,2 Vp-p ± 0,1 V.

6. Ajuste de la ganancia del bucle del servo de enfoque

● Objetivo ● Síntomas en caso de desajuste	Optimización de la ganancia del bucle del servo de enfoque La reproducción no se inicia o el actuador de enfoque produce ruido.		
● Conexión de los instrumentos de medición	Consulte la figura 6. [Ajustes] CH1 CH2 20 mV/división 5 mV/división Modo X-Y	● Estado del reproductor ● Lugar de ajuste ● Disco	Modo de prueba, reproducción VR152 (FCS GAN) YEDS-7

[Procedimiento]

1. Ajuste la salida del generador de AF a 1,2 kHz y 1 Vp-p.
2. Presione la tecla TRACK/MANUAL SEARCH FWD ▶▶/▶▶| o |◀◀/◀◀ para mover el captor hasta la mitad del disco (R = 35 mm), y después presione la tecla PGM, la tecla PLAY ▶, y después la tecla PAUSE ▮▮, por este orden, a fin de cerrar los servos correspondientes y poner el reproductor en el modo de reproducción.
3. Ajuste VR152 (FCS GAN) hasta que la forma de onda de Lissajous sea simétrica alrededor del eje X y el eje Y.

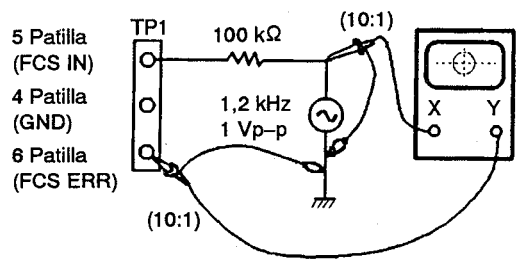
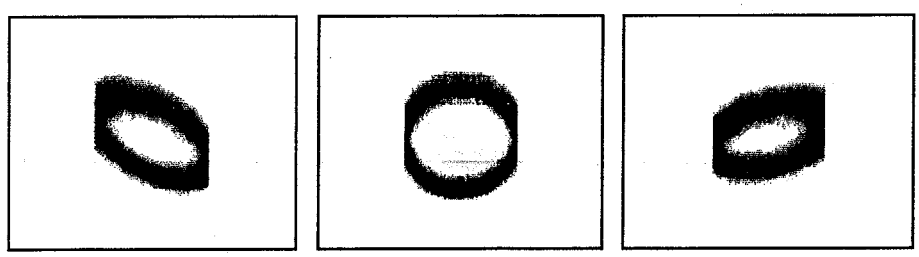


Figura 6

Ajuste de la ganancia de enfoque



Ganancia superior Ganancia óptima Ganancia inferior

7. Ajuste de la ganancia del bucle del servo de seguimiento

● Objetivo	Optimización de la ganancia del bucle del servo de seguimiento		
● Síntomas en caso de desajuste	La reproducción no se inicia, el actuador de enfoque produce ruido, o se saltan pistas.		
● Conexión de los instrumentos de medición	Consulte la figura 7. [Ajustes] CH1 CH2 50 mV/división 50 mV/división Modo X-Y	● Estado del reproductor ● Lugar de ajuste ● Disco	Modo de prueba, reproducción VR151 (TRK GAN) YEDS-7

[Procedimiento]

1. Ajuste la salida del generador de AF a 1,2 kHz y 1 Vp-p.
2. Presione la tecla TRACK/MANUAL SEARCH FWD ▶▶ / ▶▶| o |◀◀ / ◀◀ para mover el captor hasta la mitad del disco (R = 35 mm), y después presione la tecla PGM, la tecla PLAY ▶, y la tecla PAUSE ▮▮, por este orden, a fin de cerrar los servos respectivos y poner el reproductor en el modo de reproducción.
3. Ajuste VR151 (TRK GAN) hasta que la forma de onda de Lissajous sea simétrica alrededor del eje X y el eje Y.

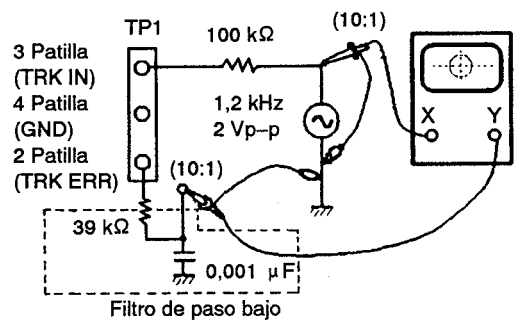
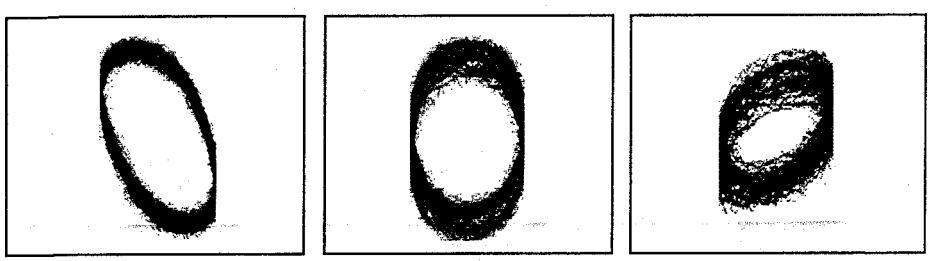


Figura 7

Ajuste de la ganancia de seguimiento



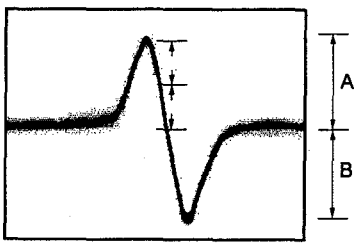
Ganancia superior | Ganancia óptima | Ganancia inferior

8. Verificación de la señal de error de enfoque (curva S de enfoque)

● Objetivo ● Síntomas en caso de desajuste	Juzgar si el captor est'a bien o no observando la señal de error de enfoque. El captor se juzga por la amplitud de la señal de error de seguimiento (como se ha indicado en la sección sobre el ajuste del *equilibrio de error de seguimiento*) y la *forma de onda de la señal de error de enfoque*.		
● Conexión de los instrumentos de medición	Conecte el osciloscopio a TP1, patilla 6, (FCS ERR). [Ajustes] 100 mV/división 5 ms/división modo de CC	● Estado del reproductor ● Lugar de ajuste ● Disco	Modo de prueba, parada Ninguno YEDS-7

[Procedimiento]

1. Conecte TP1, patilla 5, a masa.
2. Coloque el disco.
3. Contemplando la pantalla del osciloscopio, presione la tecla PGM y observe durante un momento la forma de onda de la figura 8. Verifique si la amplitud es de 2,5 Vp-p por lo menos y si la amplitud de las partes positiva y negativa son iguales. Como la forma de onda solamente sale durante un momento cuando se presiona la tecla PGM, presione una y otra vez esta tecla hasta que logre comprobar la forma de onda.



A = B
A + B ≧ 2,5 Vp–p

Figura 8

[Juicio sobre el captor]

No juzgue el captor hasta haber finalizado correctamente todos los ajustes. En los casos siguientes es posible que haya algo erróneo en el captor.

1. La amplitud de la señal de error de seguimiento es extremadamente pequeña (menos de 2 Vp-p).
2. La amplitud de la señal de error de enfoque es extremadamente pequeña (menos de 2,5 Vp-p).
3. Las amplitudes de las partes positiva y negaiva de la señal de error de enfoque son extremadamente asimétricas (relación de 2:1 o superior).
4. La señal de RF es demasiado pequeña (menos de 0,8 Vp-p) y aunque se ajuste VR1 (potencia de láser), la señal de RF no puede aumentarse hasta el nivel estándar.

9. IC INFORMATION (TC9237N)

● TC9237N (DIGITAL FILTER & D/A CONVERTER)

Pin Function

Pin No.	Pin Name	I/O	Function	Remarks
1	M/L	I	MSB First/LSB First select terminal for input data "H" : MSB First, "L" : LSB First	Pull-up
2	MUTE	I	Muting terminal "H" : mutes output signal	
3	AT	I	Normally "H"	
4	VDA	–	Power input for DA converter (R channel)	
5	RO	O	R channel data output terminal	
6	$\overline{RO}$	O	R channel data output terminal	
7	GNDA	–	Ground terminal for DA converter (R channel)	
8	GNDA	–	Ground terminal for DA converter (L channel)	
9	$\overline{LO}$	O	L channel data output terminal	
10	LO	O	L channel data output terminal	
11	VDA	–	Power input for DA converter (L channel)	
12	C	I	Fix to "L".	
13	TEST	I	Test terminal Normally "H" or open	Pull-up
14	GND	–	Ground terminal for logic section	
15	GNDX	–	Ground terminal for oscillator output section	
16	XI	I	Crystal oscillator input Generates clock necessary for the system. 384fs	
17	XO	O		
18	VDX	–	Power input for oscillator output	
19	MCK	O	System clock output terminal 384fs	
20	EM1	I	44.1 kHz/32 kHz/48 kHz mode select terminal for deemphasis filter EM1: L, L, H, H EM2: L, H, H, L Mode: 44.1 kHz, 32 kHz, 48 kHz	
21	EM2	I		
22	R/L	I	R/L select terminal "H" : LRCK signal ("H" : R channel data input, "L" : L channel data input) "L" : LRCK signal ("H" : L channel data input, "L" : R channel data input)	Pull-up
23	EMP	I	Deemphasis filter ON/OFF select terminal "H" : ON, "L" : OFF	
24	$\overline{HS}$	I	Normal/high speed select terminal "H" : normal operation, "L" : high speed	
25	DATA	I	Data input terminal	
26	BCK	I	Bit clock input terminal	
27	LRCK	I	LR clock input terminal	
28	VDD	–	Power input for logic section	

10. FOR PD–Z74T/HEMXJ, HB, HBXJ, SD, HPW AND PD–Z570T/SD TYPES

CONTRAST OF MISCELLANEOUS PARTS

NOTES:
- Parts without part number cannot be supplied.
- The ⚠ mark found on some component parts indicates the impotance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

10.1 FOR PD–Z74T/HEMXJ, HB, HBXJ, SD AND HPW TYPES

The PD–Z74T/HEMXJ, HB, HBXJ, SD and HPW types are the same as the PD–Z74T/HEM type with the exception of the following section.

Mark	Symbol & Description	Part No.						Remarks
		PD–Z74T/ HEM type	PD–Z74T/ HEMXJ type	PD–Z74T/ HB type	PD–Z74T/ HBXJ type	PD–Z74T/ SD type	PD–Z74T/ HPW type	
⊙	MOTHER BOARD ASSEMBLY	PWM1350	PWM1347	PWM1350	PWM1347	PWM1348	PWM1350	
⚠	AC power cord	PDG1008	PDG1008	PDG1021	PDG1021	RDG1003	PDG1011	
⚠	Power transformer (AC220/240V)	PTT1125	PTT1125	PTT1125	PTT1125	.....	PTT1125	
⚠	Power transformer (AC110/120–127/220/240V)	.....	.....	.....	.....	PTT1126	.....	
⚠	Voltage selector	.....	.....	.....	.....	PSB1002	.....	
	Operating instructions (English, French, German, Italian, Dutch, Spanish, Portuguese, Swedish)	PRE1136	PRE1136	.....	.....	.....	.....	
	Operating instructions (English)	.....	.....	PRB1135	PRB1135	PRB1135	PRB1135	
	Operating instructions (Spanish)	.....	.....	.....	.....	PRC1021	.....	
	Packing case	PHG1578	PHG1590	PHG1578	PHG1590	PHG1578	PHG1578	

⊙ MOTHER BOARD ASSEMBLY (PWM1347 and PWM1348)

The mother board assemblies (PWM1347) and (PWM1348) are the same as the mother board assembly (PWM1350) with the exception of the following section.

Mark	Symbol & Description	Part No.			Remarks
		PWM1350	PWM1347	PWM1348	
	IC351	PD4305B	PD4309A	PD4305B	
	VR102, VR151, VR152	RCP1046	VRTB6VS223	VRTB6VS223	
	VR103	RCP1044	VRTB6VS102	VRTB6VS102	

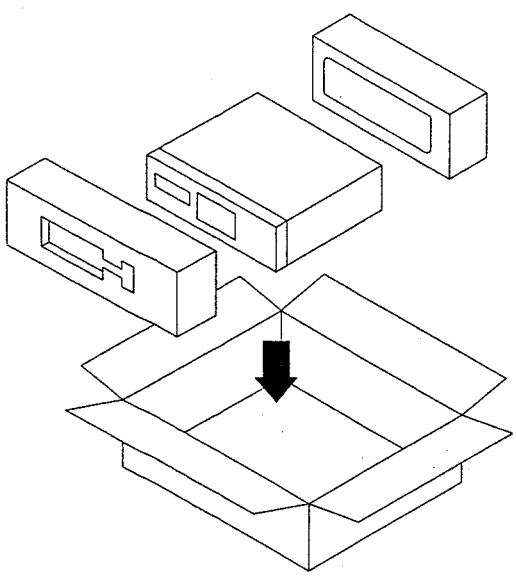
10.2 FOR PD–Z570T/SD TYPE

The PD–Z570T/SD type is the same as the PD–Z570T/HEM type with the exception of the following section.

Mark	Symbol & Description	Part No.		Remarks
		PD–Z570T/ HEM type	PD–Z570T/ SD type	
⊙	MOTHER BOARD ASSEMBLY	PWM1345	PWM1346	
⚠	AC power cord	PDG1008	RDG1003	
⚠	Power transformer	PTT1125	.....	
⚠	Power transformer	.....	PTT1126	
⚠	Voltage selector	.....	PSB1002	
	Operating instructions (English, French, German, Italian, Dutch, Spanish, Portuguese, Swedish)	PRE1139	.....	
	Operating instructions (English)	.....	PRB1147	
	Operating instructions (Spanish)	.....	PRC1021	

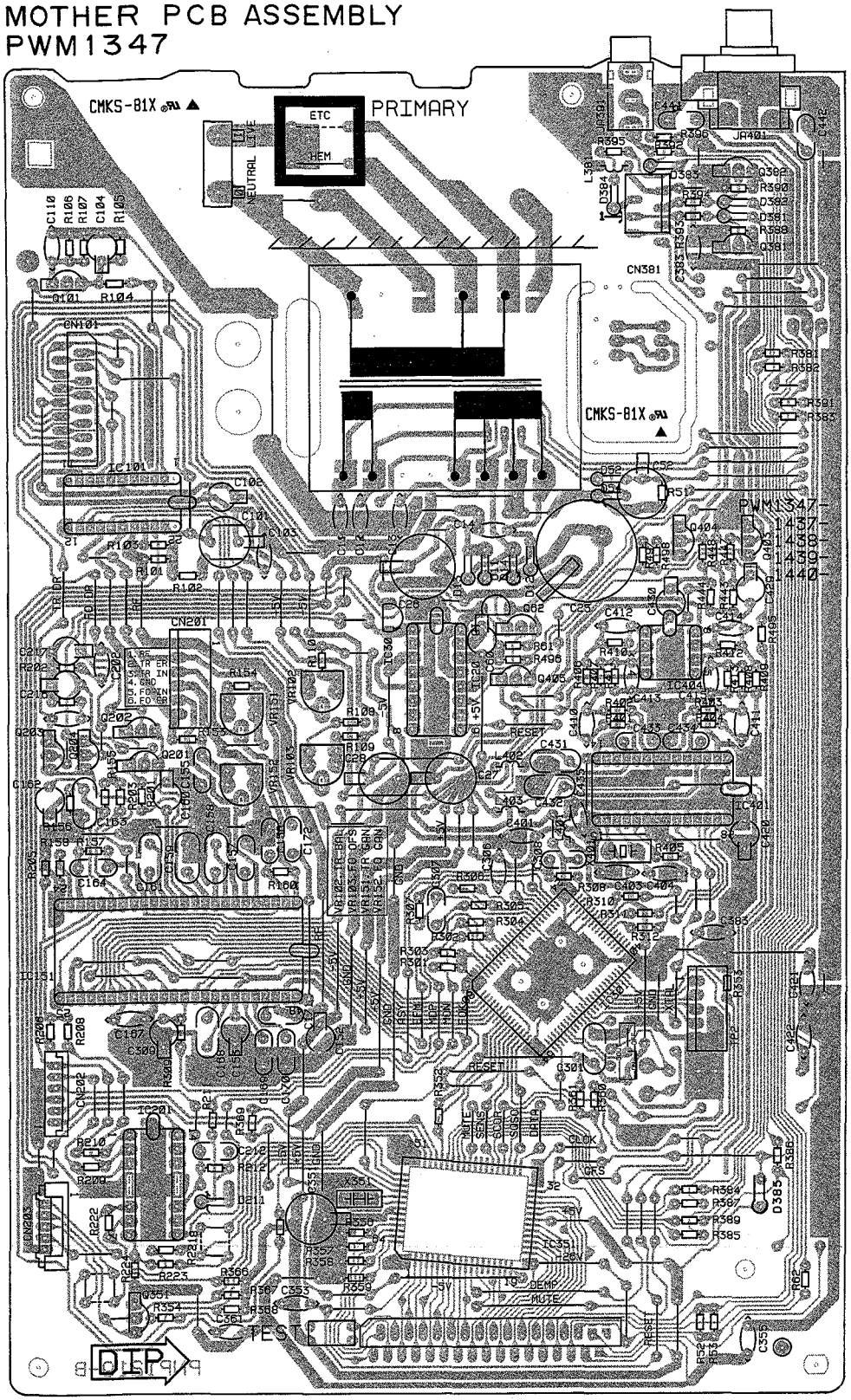
Note: The components of the mother board assembly are the same between the two types.

10.3 PACKING FOR PD–Z74T/HEMXJ AND HBXJ TYPES



10.4 P.C. BOARD PATTERNS

MOTHER PCB ASSEMBLY
PWM1347



Q382
Q381
Q101
IC101
Q404
Q403
IC30 Q62
IC404
VR102
IC20 Q405
VR151
Q202
VR 103 Q203 Q204
VR152
Q201
IC401
IC151
IC301
IC201
IC351
Q351

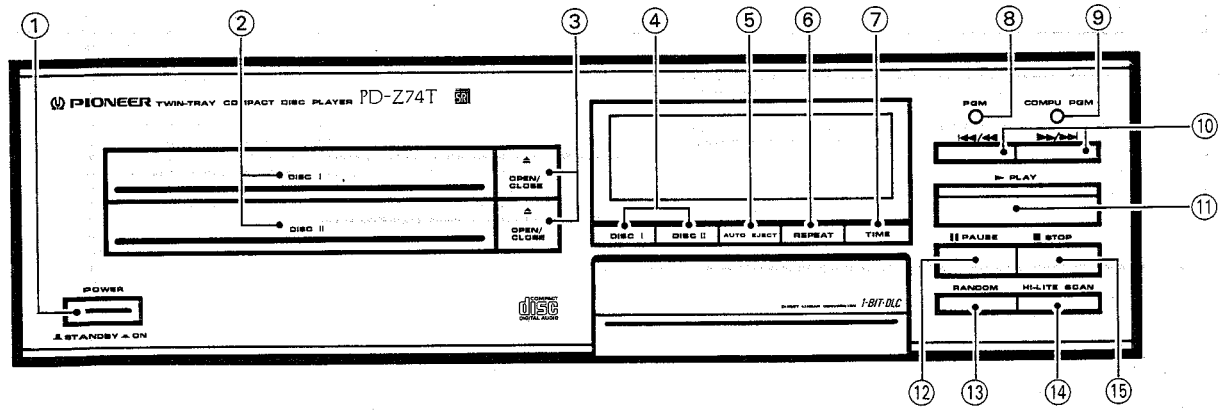
10.4 P.C. BOARD PATTERNS

This P.C.B. connection diagram is viewed from the foil side.

MOTHER PCB ASSEMBLY
PWM1347

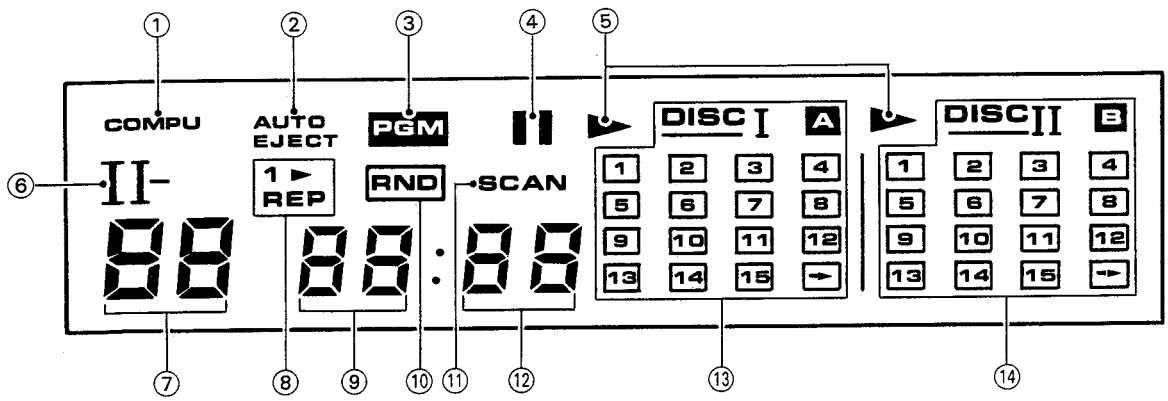
11. PANEL FACILITIES

PD–Z74T



FRONT PANEL

① Power switch (POWER STANDBY/ON)
② Disc trays (DISC I, DISC II)
③ OPEN/CLOSE buttons (I, II)
④ Disc select buttons (DISC I, DISC II)
⑤ AUTO EJECT button
⑥ REPEAT button
⑦ TIME button
⑧ Program button (PGM)
⑨ Computer allocated program editing button (COMPU PGM)
⑩ Track/Manual search buttons (⏮/◀◀, ▶▶/⏭)
⑪ PLAY button (▶)
⑫ PAUSE button (❚❚)
⑬ Random play button (RANDOM)
⑭ HI-LITE SCAN button
⑮ Stop/Clear button (STOP ■)

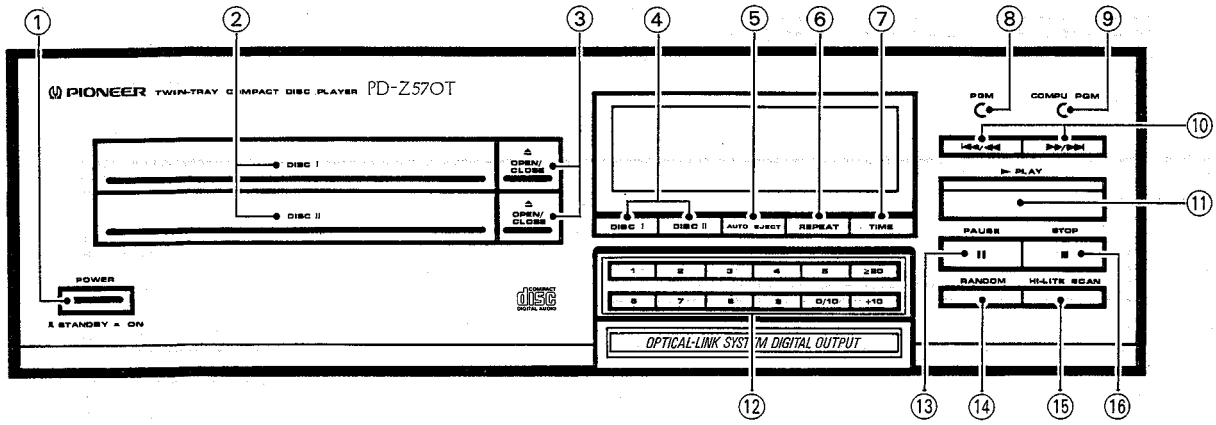


DISPLAY

① Lights during use of computer allocated program editing.
② Lights during auto eject.
③ Lights during program input.
④ Lights during playback pause.
⑤ Lights during playback. (DISC I or DISC II)
⑥ Indicates disc number (I or II) during playback or search.
⑦ Indicates track number (01—99) during playback or search.
⑧ Lights during repeat playback. (During single-track repeat, the [1 ▶] indicator also lights).
⑨ Indicates the minutes digit of the track playing time and remaining time.
⑩ Lights during random playback.
⑪ Lights during HI-LITE scan on DISC I or DISC II.
⑫ Indicates the seconds digit of the track playing time and remaining time.
⑬ Indicates the track number on DISC I.
Also indicates the track numbers for editing on side A of a cassette tape.
⑭ Indicates the track number on DISC II.
Also indicates the track numbers for editing on side B of a cassette tape.

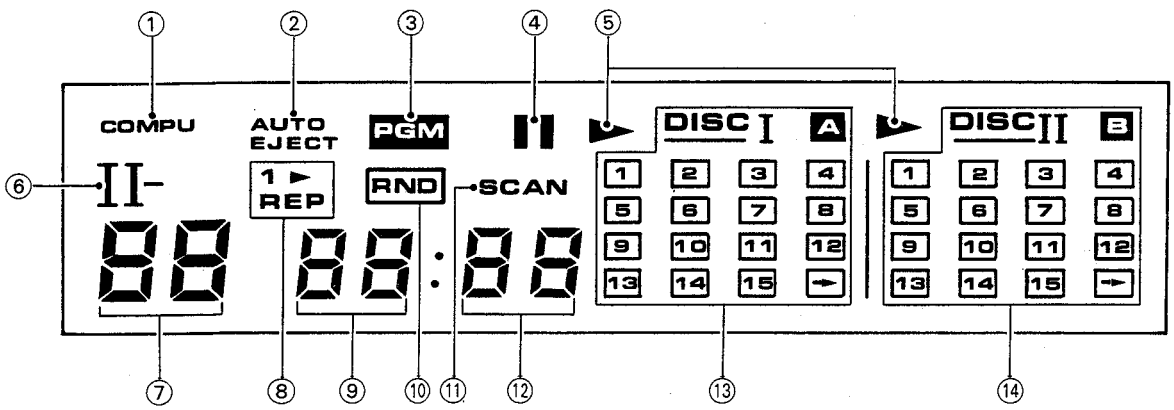
D-Z74T, PD-Z570T

PD-Z570T



FRONT PANEL

① Power switch (POWER STANDBY/ON)
② Disc trays (DISC I, DISC II)
③ OPEN/CLOSE buttons (I, II)
④ Disc select buttons (DISC I, DISC II)
⑤ AUTO EJECT button
⑥ REPEAT button
⑦ TIME button
⑧ Program button (PGM)
⑨ Computer allocated program editing button (COMPU PGM)
⑩ Track/Manual search buttons (|◀◀/◀◀, ▶▶/▶▶|)
⑪ PLAY button (▶)
⑫ Track number buttons (1—0/10, +10, ≧20)
⑬ PAUSE button (▮▮)
⑭ Random play button (RANDOM)
⑮ HI-LITE SCAN button
⑯ Stop/Clear button (STOP ■)



DISPLAY

① Lights during use of Computer allocated program editing.
② Lights during auto eject.
③ Lights during program input.
④ Lights during playback pause.
⑤ Lights during playback. (DISC I or DISC II)
⑥ Indicates disc number (I or II) during playback or search.
⑦ Indicates track number (01—99) during playback or search.
⑧ Lights during repeat playback. (During single-track repeat, the [1 ▶] indicator also lights).
⑨ Indicates the minutes digit of the track playing time and remaining time.
⑩ Lights during random playback.
⑪ Lights during HI-LITE scan on DISC I or DISC II.
⑫ Indicates the seconds digit of the track playing time and remaining time.
⑬ Indicates the track number on DISC I.
Also indicates the track numbers for editing on side A of a cassette tape.
⑭ Indicates the track number on DISC II.
Also indicates the track numbers for editing on side B of a cassette tape.

12. SPECIFICATIONS

PD-Z74T

1. General

Type ..... Compact disc digital audio system
Power requirements
European models ..... AC 220V, 50/60Hz
U.K., Australian models ..... AC 240V, 50/60Hz
U.S., Canadian models ..... AC 120V, 60Hz
Other models ..... AC 110/120–127/220/240V (switchable), 50/60Hz
Power consumption 10W
Operating temperature ..... +5°C–+35°C (+41°F–+95°F)
Weight 3.4kg (7lb, 8oz)
External dimensions ..... 360(W) × 290(D) × 105(H)mm 14-3/16(W) × 11-13/32(D) × 4-1/8(H) in.

2. Audio section

Frequency response 2Hz–20kHz
S/N ..... 100dB or more (EIAJ)
Dynamic range ..... 94dB or more (EIAJ)
Channel separation ..... 93dB or more (EIAJ)
Wow and flutter ..... Limit of measurement (±0.001% W.PEAK) or less (EIAJ)
Number of channels ..... 2 channels (stereo)

3. Output terminal

- Audio line output terminal
- Control output terminal

4. Functions

- Play
- Pause
- Track search
- Manual search
- Programmed playback
- Programmed repeat
- Pause program
- Computer allocated program editing
- Single track repeat
- Sequential disc all track repeat
- Relay playback
- Random relay play
- Auto eject play
- Auto eject random play
- Random play
- Random repeat
- Hi-lite scan
- Display of a particular track

5. Accessories

- Remote control cord 1
- Output cable 1
- Operating instructions 1

NOTE:
The specifications and design of this product are subject to change without notice, due to improvements.

PD-Z570T

1. General

Type ..... Compact disc digital audio system
Power requirements
European models ..... AC 220V, 50/60Hz
U.K., Australian models ..... AC 240V, 50/60Hz
U.S., Canadian models ..... AC 120V, 60Hz
Other models ..... AC 110/120–127/220/240V (switchable), 50/60Hz
Power consumption 10W
Operating temperature ..... +5°C–+35°C (+41°F–+95°F)
Weight 3.5kg (7lb, 12oz)
External dimensions ..... 360(W) × 285(D) × 121(H)mm 14-3/16(W) × 11-7/32(D) × 4-25/32(H) in.

2. Output terminal

- Optical digital output terminal

3. Functions

- Play
- Pause
- Track search
- Manual search
- Programmed playback
- Programmed repeat
- Pause program
- Computer allocated program editing
- Single track repeat
- Sequential disc all track repeat
- Relay playback
- Random relay play
- Auto eject play
- Auto eject random play
- Random play
- Random repeat
- HI-LITE scan
- Display of a particular track

4. Accessories

- Optical fiber cable 1
- Operating instructions 1

NOTE:
The specifications and design of this product are subject to change without notice, due to improvements.